CARISMAND
Culture And RISk management in
Man-made And Natural Disasters

Culture and disaster risk management - Synthesis of citizens' reactions and opinions during 6 Citizen Summits: Romania, Malta, Italy, Germany, Portugal and the Netherlands.

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1. Summary

The following are the key findings from six Citizen Summits in which a total of 619 participants took part. These Citizen Summits were held as part of the CARISMAND project and were organised as a combination of dissemination and data gathering events. The analyses and results in this document are based on quantitative and qualitative data collection regarding citizens' feelings and perceptions towards disaster risks, and their attitudes and intended behaviours related to disasters. The quantitative data were collected electronically via an immediate audience response system during each event; the qualitative data were collected by recording group discussions where the audience was split up in small discussion groups. The Citizen Summits were held in Romania, Malta, Italy, Germany, Portugal and The Netherlands between July 2016 and May 2018.

Key findings

Disaster preparedness

1. Levels of knowledge about what to do in case of a disaster varied across the six Citizen Summits. Overall 72% of respondents indicated that they feel not informed or not informed at all, but this ranged from almost all the Maltese participants (91%) but only half of the Dutch participants (49%) feeling they lacked knowledge about what to do in a disaster.
2. Two out of three (61%) of all participants felt not prepared or not prepared at all for a disaster, with similar results across five events. The exception was the Romania summit where only a third of participants felt not prepared or not prepared at all.
3. Participating citizens in all summits expressed considerable interest in receiving information about disaster preparedness, with 92% indicating that they were quite interested or very interested, ranging between 85% (Germany) and 98% (Romania).
4. There are significant differences between participants' preparedness intentions in the different summits. In some locations, participants indicated that they intended to prepare quite a lot or a lot (Portugal: 91%; Malta 77%). Whereas few participants in the Dutch and German Citizen Summits intended to prepare for disasters (Netherlands: 28%; Germany: 21%).
5. Most participating citizens would like to receive information about how to prepare themselves and their family/friends for a disaster at least once per year This varies from 62% (The Netherlands) and 93% (Portugal).
6. Interest in participating in training activities (e.g., emergency drills or workshops) that would help improve their and their family's/friends' safety varies considerably. Most participants in Italy (80%) but less than half of those in the Netherlands (41%) would participate in such training activities at least once every 1 to 2 years.
7. The participation in disaster preparedness training (courses, workshops, simulation exercises) was perceived by participating citizens as useful to promote social cohesion, solidarity, and creating a sense of community before a disaster occurs. Such activities were also perceived as an opportunity to learn about emotional responses, self-control, and the general processes in disaster management, aiming to understand in which situation a citizen's active contribution is helpful, and when to better stand back and contribute in a more "passive" manner.

8. Participation in simulation exercises was perceived as having the potential to increase mutual understanding and trust between practitioners and citizens, in particular through a better understanding of the processes involved.
9. Attitudes to disaster preparedness appeared to be embedded in local cultural values: In the Romanian Citizen Summit, participants described their disaster preparedness as predominantly information-based and individualistic; in the Maltese Citizen Summit, participants described their disaster preparedness in terms of social relations and social activities.
10. Discussion group results in the Malta Citizen Summit demonstrated how personal traits (e.g., a propensity to help) can be transformed into cultural values (i.e., a "culture to help"). Activities which encourage such transformation processes are likely to contribute to a strengthened social solidarity before a disaster occurs.

Disaster risk perception

11. Consolidated data for all six Citizen Summits found no evidence that perceived disaster risk is connected with previous experience of disasters.
12. Perceived disaster risk was also not related to increased interest in receiving information about disaster preparedness measures or in any disaster preparedness intentions.
13. Worries and concerns about disasters were found to be related to interest in information about preparedness measures and potential behavioural change. This suggests that appealing to citizens' emotions rather than merely providing information about disaster risks is more likely to result in improved disaster preparedness.
14. Disaster risk perception comprises cognitive and emotional components which, in turn, are linked to different personal, social, and cultural factors.
15. Relationships between participants' worries and concerns, perceptions of local disaster risk and feelings of preparedness as found in the Romanian Citizen Summit, point at the opportunity to encourage active citizenship through communication with the general public that is honest about the facts, and comprehensive information campaigns.
16. Findings in the Dutch Citizen Summit suggest that the perception of disaster protection mechanisms being very well-developed and high trust in authorities may result in an elevated level of inertia regarding personal preparedness measures.

Technology use: Social Media and Mobile Phone Apps

17. A large proportion of participants in all Citizen Summits indicated that they were likely or very likely to use both mobile phone apps and social media in disaster situations.
18. Social media is most likely to be used to inform oneself about a disaster, followed by warning or informing other social media users. Using social media to submit information to local authorities or emergency services is the less likely in all locations, but still ranges from 50% (Netherlands) to 71% (Romania).
19. Results suggest that the development of social media applications in disaster management should target multi-functional solutions which allow different information flows, i.e., authorities to citizens, citizens to authorities and citizens to other citizens.
20. In most Citizen Summit locations, mobile phone apps were most likely to be used to receive warnings, alerts or emergency/disaster-related information, followed by warning or informing other app users. The likelihood of using mobile phone apps to submit disaster-

related information to authorities was lower, but generally higher that the likelihood of social media usage for the same purpose.

21. Results suggest that implementing mobile phone apps for crowd sourcing in disaster management may hold a higher potential for authorities to receive information from citizens than using social media for that purpose.
22. In particular older participants indicated a more negative attitude towards social media usage but showed the most positive response towards using and testing a "disaster app", contradicting the cultural stereotype of older people being generally more technology-averse.
23. Mobile phone apps which target disaster preparedness were not only ascribed the possible function of technology-based community-building amongst citizens, but they were also imagined as contributing to the development of a specific "culture of preparedness", based on the common interest in new technology use.
24. Despite general trust issues, social media sites from the police were highly appreciated and trusted; this also points at the potential of social media usage to rebuild citizens' trust in the police by taking up the role of a trustworthy information provider at times where both private and public media channels are increasingly distrusted.
25. Participating citizens expressed their opinion that "disaster apps" should:
    I. Be authored, led and maintained by a public authority (either Civil Protection or a supra-national entity on EU-level);
    II. Include functions for both disaster response and disaster preparedness;
    III. Should be automatically pre-installed when purchasing a new phone.

Trust in authorities

26. Generally, there is a link between citizens' perceived effectiveness of authorities and general feelings of trust in these authorities, but participants explicitly stated that they do not link a perceived lack of effectiveness to general feelings of distrust.
27. The disaster management authorities trusted most, and perceived to be most effective, are the Fire Brigade, Civil Protection, and Medical Emergency Services.
28. The organisations trusted least, and perceived to be the least effective, are the media and the local police.
29. Low levels of trust in the media were mostly related to sensationalist reporting of crises, but citizens also outlined the positive media coverage of professional response in case of natural hazards-caused disasters as particularly trust-building.
30. About three out of five participants overall indicated that they would trust, or trust a lot, messages from local authorities in situations where there was a high risk of a disaster occurring in their area.
31. In the Romania and the Italy Citizen Summits, results point at distrust arising from personal experience and personal expectation being at odds with trusting behaviour which is embedded in the acceptance of hierarchical structures as a cultural norm (trust in authorities as "citizen duty"), creating ambivalent feelings about the relationships between citizens and authorities in disaster situations.
32. In the Germany Citizen Summit, results show that migrants or expatriates who have settled and strongly identify themselves with their new home and the new environment may, through their increased level of trust in authorities, be of particular help as informal liaison persons who can mediate between affected citizens and disaster managers.

33. No support was found for the hypotheses that citizens may distrust, or trust authorities, because they feel that they themselves are distrusted or trusted.

Recommendations for Citizens

34. The following recommendations were formulated based on the findings from the Citizen Summits, which, in turn, were based on results from Stakeholder Assemblies and other Work Packages. These recommendations will be included in the Work Package 9 CARISMAND Toolkit.
35. These recommendations specifically target the use of cultural factors to improve the effectiveness of disaster preparedness measures, reaching out to a wider range of cultural groups, and/or use cultural factors to encourage attitudinal and behavioural change.
36. The recommendations address the general public, but may also be used and disseminated by others, e.g., disaster management authorities and citizen organisations in their respective activities.
37. All recommendations were validated through group discussions with citizens held during the 5th and 6th Citizen Summits.

Recommendations for developing a personal "culture of preparedness"

38. Be always on the look-out for publicly displayed information about how to prepare for disasters, which is often displayed in public places, e.g., posters and signs in buses, waiting halls, entrance areas of sports stadiums, shopping centres, concert halls or hotel lobbies. Make a point of reading and memorising such information, and encourage people who are accompanying you, especially children, to do the same.
39. Identify and memorise "safe spots" or "safe zones" in your homes, your workplaces, and your local area. Keep in mind that such safe places may be different for different types of disaster. Share and discuss these safe places with family members, friends and colleagues.
40. Search online for reliable sources of information (e.g., the Civil Protection website) or ask your local council for information about how to prepare yourselves and your family and friends for disasters. Download this information or ask the authorities to send you any available brochures. Update yourself at least once a year.
41. Set up personal emergency plans together with your family and friends by discussing emergency contacts, meeting points, means of communication etc. Use simple reminders to have these emergency plans and information readily available (e.g., as a pic on your mobile phone, in your purse, or to stick on the fridge).
42. Find out which information channels can be used in case of a disaster, e.g., websites or social media sites of your local police force, Civil Protection etc. Make sure you know how to access them, bookmark the links and test them regularly. Encourage and help other family members and friends to do the same.
43. If you have a smart phone, find out what mobile phone apps are available in your country and local area that are specifically designed for disaster communication, such as providing warnings and alerts, recommendations for appropriate disaster preparedness and response, and important points of contact in case of a disaster. Become familiar with the features of such apps and test them frequently. Encourage friends and family members to download and use this app as well.

44. If you enjoy playing online games, find out what serious games for disaster preparedness and response are available in your country and language; train yourself by playing them and encourage others to do the same. If there are such games that were specifically designed for children, encourage your children to play them, or play them together; ask teachers or kindergarten staff to play them with the children regularly.
45. If you travel abroad, make it a habit to gather in advance information about local emergency procedures, e.g. via websites of Civil Protection, Red Cross, your country's local embassy, or by asking at the hotel reception of your travel destination. If you use mobile phone apps, find our whether there is a "disaster app" available in the countries where you travel, which provides emergency-related information and guidance in your language.

Recommendations for participation in disaster preparedness and response activities

46. Find out whether there are community workshops in your area on how to prepare for, and respond to, disasters. If none are organised, ask your local council or civil protection authority to organise such workshops. Take part in these workshops and use this opportunity to share your experiences of past disasters; discuss values and traditions that played an important role in these situations. The active participation in such community workshops will help community members learn from each other about local hazards and disaster risks, and so strengthen community spirit for improve community responses in the event of a disaster.
47. Find out about training events in your area, e.g. First Aid and CPR training, where you can participate; use these events to learn new skills or refresh old skills. Such events are also an opportunity to train with fellow citizens from other cultural backgrounds, learn to identify and respect their specific cultural needs.
48. Volunteer to get involved in the planning of emergency and disaster response activities (e.g., by contacting your local council, or Civil Protection), and encourage fellow citizens from different cultural backgrounds to do the same. Your participation will help practitioners learn about cultural differences before a disaster occurs and adapt the respective guidelines and procedures accordingly.
49. If there is the opportunity, participate regularly in disaster simulation exercises, which will help strengthening a sense of community, and increase the mutual understanding and trust between disaster practitioners and citizens. Encourage friends and family members to do the same.
50. When you participate in disaster training activities, use these opportunities to think about and discuss with other participants and your trainers the personal skills you already have that could be helpful in a disaster, e.g. technical skills, communication skills, organising talent or detailed local knowledge.
51. If you are involved in digital gaming design, for example as the developer of multi-player online games, a lecturer or a student in this area, help disaster managers to employ virtual reality as a training method. This could be achieved by using serious game design for disaster preparedness as a study goal, or by including the theme of appropriate disaster response in the design of multi-player games.

2. Introduction

The analyses and results in this document are based on the data collected during six Citizen Summits held in

- Romania (Bucharest) on July 9th, 2016
- Malta on July 16th, 2016
- Italy (Rome) on June 17th, 2017
- Germany (Frankfurt) on June 24th, 2017
- Portugal (Lisbon) April 14th, 2018
- The Netherlands (Utrecht)on May 12th, 2018.

All Citizen Summits were designed as one-day events combining public information with feedback gathering through different methods of data collection, as laid out in Deliverable D5.1 (Structural design & methodology for Citizen Summits).

A total of 619 citizens participated in the six events.

In the morning session, the Citizen Summits started with a presentation of the CARISMAND project and its main goals and concepts. Then, several sets of questions with pre-defined answer options were posed to the audience and responses collected via an audience response system. All questions in this part of the event aimed to explore citizens' attitudes, perceptions, and intended behaviours related to disasters and disaster risks. Between these sets of questions, additional presentations were held that informed the audience about state-of-the-art disaster preparedness and response topics (e.g., large-scale disaster scenario exercises, use of social media and mobile phone apps), as well as CARISMAND research findings.

Furthermore, the last round of Citizen Summits (CS5 in Lisbon and CS6 in Utrecht) were organised and designed to additionally discuss and collect feedback on recommendations for citizens, which have all been formulated on the basis of Work Packages 2-10 results and in coordination with the Work Package 11 brief. These Toolkit recommendations will form one of the core elements of the Work Package 9 CARISMAND Toolkit.

In the afternoon session of each event, small moderated group discussions (with 8-12 participants each) of approximately 2 hours' duration were held, which aimed to gather citizens' direct feedback on the topics presented in the morning sessions, following a detailed discussion guideline. For a detailed overview of all questions asked and topics discussed, please see Appendices A-1 to A-3.

The rest of this report is structured in six main sections: After the executive summary and this introduction, the third section will present an overview of the different methods applied. The fourth section will provide a synthesis of quantitative and qualitative data collected during all Citizen Summits. The fifth section will present the evaluation of CARISMAND Toolkit recommendations for citizens, followed by a final concluding chapter.

3. Methodology

Citizen Summits were, originally, designed in the political sector to build upon the traditional model of public hearings, but using small discussion groups and interactive computer technologies to place pre-defined discussion topics as well as real-time questions to these groups and display their discussion results and individual votes on large screens to all summit participants. This model, intended to allow "ordinary" citizens rather than only a specialist elite access to the policy-making process.

Since then, the concept has been taken up by a variety of governmental institutions as well as NGOs to target specific local challenges but, more often, to encourage the public discussion of broader themes such as the future of Europe, climate change, or gender issues. For example, in the past 10 years the Danish Board of Technology Foundation (DBT)[1] has organised a number of Citizen Summits, e.g., on the effects of climate change in Danish municipalities specifically prone to flooding[2].

Beyond the aim to explore citizens' political priorities and inform policy makers about alternatives of action, the concept of citizen summits has also been turned into a scientific research design, using tools of quantitative and qualitative methodologies (e.g., transcription and content analysis of groups discussions) to test theoretical models.[3]

The CARISMAND Citizen Summits were designed to combine public information, comprehensive feedback-gathering and data analysis, with the results feeding directly into the issues to be discussed in the next Stakeholder Assembly. The results of the respective Stakeholder Assembly, then, fed into the design of the next round of Citizen Summits, whose results in turn shaped the content of the subsequent Stakeholder Assembly etc. Accordingly, CARISMAND Citizen Summits went beyond the concept of the Citizen Summits described above – whether those focussing on public participation or those focussing on knowledge generation. Rather than being one-off events, they allowed citizens in six European locations to influence the progression of ideas and, ultimately, shape the development of the CARISMAND Toolkit in an iterative process over a period of three years.

Participants for all CARISMAND Citizen Summits were recruited via local market research agencies[4], following a recruitment questionnaire (see Appendix B), which aimed at achieving an even gender and age distribution, as well as a minimum proportion of participants fulfilling certain criteria such as having experience of disasters and using social media. All documents, i.e., recruitment questionnaire, consent form, PowerPoint presentations, and focus group discussion guidelines were translated into the respective local language. Accordingly, the Citizen Summit presentations as well as the group discussions were held in the respective local language[5], aiming to avoid any language/education-

[1] http://www.tekno.dk

[2] Irwin, Alan / Horst, Maja (2016) Engaging in a decentred world. Overflows, ambiguities, and the governance of climate change. In: Chilvers, Jason / Kearnes, Matthew (eds) Remaking Participation. Science, environment and emergent publics, Routledge: Abingdon / New York, 64-80.

[3] Degli Esposti, Sara / Santiago Gomez, Elvira (2015) Acceptable Surveillance-Orientated Security Technologies: Insights from the SurPRISE Project. In: Surveillance & Society 13(3/4): 437-454.

[4] Romania: Mercury Research, Bucharest; Malta: Bloom Research, Floriana; Italy: RFR International, Rome; Germany: Schmiedl Marktforschung, Frankfurt/Berlin; Portugal: Equação Lógica, Lisbon; Netherlands: Rountable Research, Amsterdam.

[5] Some presentations were held in English but with simultaneous translation into the respective local language.

related access restrictions for participation and allowing citizens to respond intuitively and discuss freely in their native tongue. For this purpose, professional local moderators were contracted[6].

Overall, between 28 and 42 quantitative questions were posed during the presentations to the general audience. The participants' immediate responses were captured via an audience response system[7]. After each event, all data were exported into a database for further analyses. All data in this database are fully anonymous. Although keypad ID's were assigned to participants during the registration process to enable retrieval of the devices at the end of the event, WP5 team members were not involved in this process and had no access to the registration documents. Additionally, after data export, random new ID's were assigned to all data sets. All analyses were conducted with SPSS[8] and significance tests[9] were run for all results.

After the presentations and questions, the audiences were split up into smaller groups of 8-12 participants with an even gender split and similar ages. This division into age groups aimed to allow participants to discuss amongst peers with similar life-experience. All group discussions were audio-recorded, fully transcribed, and translated into English. In this process, all participant names and personal identifiers were removed to ensure the participants' anonymity.

For Citizen Summits 1, 2, 3 and 4, the resulting English transcripts were coded following a preliminary coding framework which was based on the respective discussion guideline, and that allowed an initial structuring of the vast amount of collected data. Then, all transcripts were re-coded theme by theme, summarising specific processes and practices or constructions and interpretations. This process of re-coding also initialised a critical restructuring and rethinking of the codes applied first, and allowed a more focussed data analysis.

For Citizen Summits 5 and 6, where the group discussions specifically focused on the evaluation of recommendations for citizens to be included in the WP9 Toolkit, the qualitative analysis of translated transcripts also followed, in a first step, the structure of the respective discussion guideline, i.e., general feedback, favourable and unfavourable reactions to the individual recommendations, barriers, and suggestions for improvement. These structured results were then coded to indicate participating citizens' acceptance, perceived usefulness and relevance of the recommendations presented. Based on the frequency of these specific findings, the following "rating system" was established:

++	All or almost all participants in all groups agreed and found the respective recommendation to be very useful and important.
+	A majority of participants in most groups agreed upon the respective recommendation's usefulness, with some participants considering it to be difficult to implement in their daily lives.
+/-	The recommendation had a mixed reception, i.e. some of the participants perceived it as useful, whereas others felt that it would not be applicable to them (e.g., due to age concerns or personal circumstances).
-	A majority of participants perceived the recommendation as not useful or practicable, e.g., because it was seen to be a recommendation for authorities rather than for citizens.

[6] Additionally, in Malta and Utrecht experienced staff of local project partners assisted as discussion group moderators.
[7] Clik-a-pad system with ppvote software; for further information see http://www.clikapad.com.
[8] Citizen Summits 1-4: SPSS version 24.0; Citizen Summits 5 and 6: SPSS Version 25.0.
[9] T-tests for potential differences between female and male responses; Tukey's range test in conjunction with ANOVA (post-hoc analysis) for potential differences between age groups.

In one case (related to educational games) the rating “++/-“ was assigned, given that the respective recommendation raised strong interest amongst many participants with young children and also a number of older participants, whereas a (smaller) number of participants were adamantly against and questioned whether games would be appropriate for disaster-related education.

4. Synthesis of Empirical Data

Overall, 619 citizens participated in the six events. The total sample shows a relatively even gender and age distribution, which is unsurprising given the target quotas[10] which were requested from the recruiting local market research agencies. The comparatively low number of senior citizens aged 65 and above was expected and reflects mobility issues.

Table 1
Participant profile by age and gender

Citizen Summit location	Total	Gender			Age Groups						
		Female	Male	No answer[11]	18-24	25-34	35-44	45-54	55-64	65+	No answer
Romania	**110**	54	51	5	22	23	19	27	13	4	2
Malta	**108**	50	53	5	19	29	15	22	17	2	4
Italy	**105**	50	53	2	16	19	24	18	16	11	1
Germany	**105**	56	48	1	18	23	22	24	15	3	0
Portugal	**102**	55	43	4	16	21	18	24	17	6	0
Netherlands	**89**	43	44	2	20	19	15	16	13	5	1
Total	**619**	**308**	**292**	**19**	**111**	**134**	**113**	**131**	**91**	**31**	**8**

In the initial phase of the morning session in each Citizen Summit, the participants were asked about key aspects of experience of disasters and disaster risk perception that could potentially have an impact on how other questions were answered[12]. As expected, the results reflect the considerable location-related differences (see Table 2 below):

- The high level of disaster experience and perceived disaster risk in Romania is consistent with the data published in the World Risk Report 2017 (as well as the reports of previous years), where Romania has a risk index indicating an elevated level of disaster risks amongst European countries, in combination with a comparatively high lack of coping capabilities and adaptive capacities. In contrast, Malta is ranked as the second-lowest in the world and lowest in Europe.[13]
- Italy and Germany are both positioned in the middle ranks, but with very specific local experiences: On the one hand, citizens living in Rome are in a comparatively safe location but, at the time of the summit, had very recent experience of a series of earthquakes ("natural hazards"); on the other hand, citizens living in the Frankfurt/Rhein-Main area are exposed to an elevated level of local "man-made hazards" (large airport, chemical industry).
- The Netherlands are concerned with a rather high level of exposure to natural hazards (flooding) but, at the same time, low vulnerability, susceptibility, and a high level of coping capabilities and adaptive capacities. Citizens in Portugal had very recent experience of serious wildfires which

[10] Target gender split: 50% female / 50% male; target age split: 20% 18-24 years, 40% 25-44 years, 40% 45+ years; total target of approximately 90-110 participants per Summit, and an overall target of approximately 600 citizens.
[11] In each question, the participating citizens were given the answer option "choose not to say".
[12] These questions formed part of the recruitment criteria to ensure a good mix of levels of experience for the group discussions in the respective afternoon sessions of each event.
[13] See https://reliefweb.int/report/world/world-risk-report-2017.

incurred a high number of fatalities, and a public perception that these disasters were not handled well by the responsible authorities.

Table 2
Disaster experience & risk perception

Country	Q3: Experience of disasters	Q4: Feel that living in a disaster area	Q5: Know of vulnerable groups particularly exposed to disasters
	Answer=YES		
Romania	92%	68%	78%
Malta	50%	38%	48%
Italy	72%	13%	27%
Germany	67%	54%	62%
Portugal	93%	57%	59%
Netherlands	58%	21%	44%
Total	**72%**	**42%**	**53%**

Q3: Have you, or a close friend or family member, ever experienced a disaster?
Q4: Do you feel you are living in an area that is specifically prone to disasters?
Q5: Do you know of any other people in your area where you live who you think are particularly vulnerable or exposed to disaster?

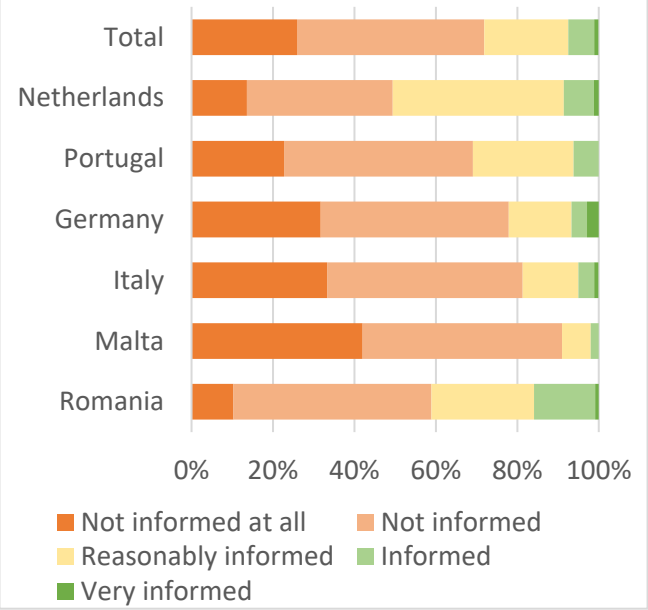
These very different backgrounds played an important role in the choice of locations for the CARISMAND Citizen Summits, as they were intended to provide a wide range of disaster experience and perceived vulnerability, which may have an influence on disaster risk perception. However, with the exception of the data collected in the Dutch Citizen Summit[14], no meaningful relationships between disaster experience and perceived vulnerability to disasters were found, whereas knowing of vulnerable groups appeared was moderately related to disaster risk perception in some countries[15]. These results confirm findings in previous research and reaffirm the need to find those factors which do provide the (missing) link between risk perception and risk behaviour or, at least, behavioural intentions related to disaster preparedness.

[14] Weak correlation (r_S=.251).
[15] Romania: r_S=.300; Portugal: r_S=.391; Germany: r_S=.489; Total data: r_S=.299.

4.1. Disaster Preparedness

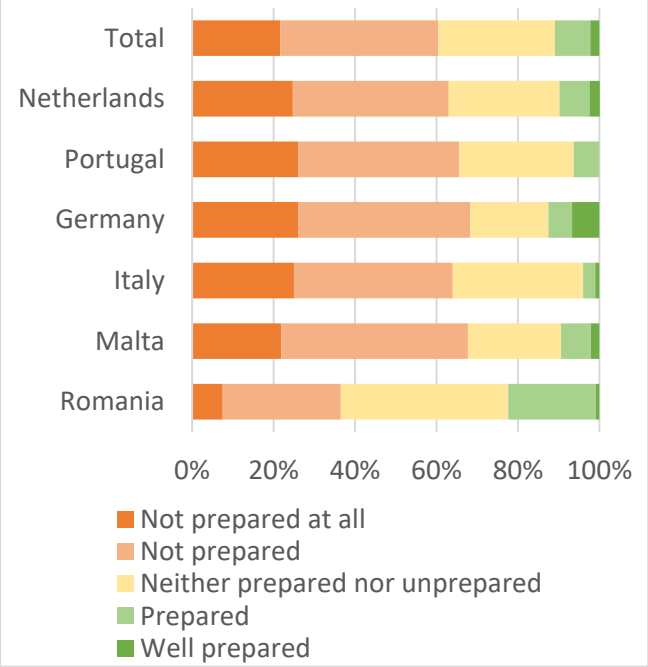
Levels of knowledge about what to do in case of a disaster varied across the six Citizen Summits. Although overall 72% of respondents indicated that they feel not informed or not informed at all about what to do in a disaster, nine out of ten Maltese participants but only half of the Dutch respondents felt such lack of information, demonstrating a considerable range of perceived information levels. At the same time, and despite these country-specific different levels of feeling informed, feelings of preparedness are somewhat more similar across all countries (Total: 61% feeling not prepared or not prepared at all), with the exception of Romania where only about a third of the respondents feel not prepared or not prepared at all.

Figure 1
Feeling informed about what to do in a disaster



Q6 – How informed do you feel by the authorities (for example Civil Protection, local police, emergency services) of what you have to do in case of a disaster?

Figure 2
Feeling personally prepared for disasters



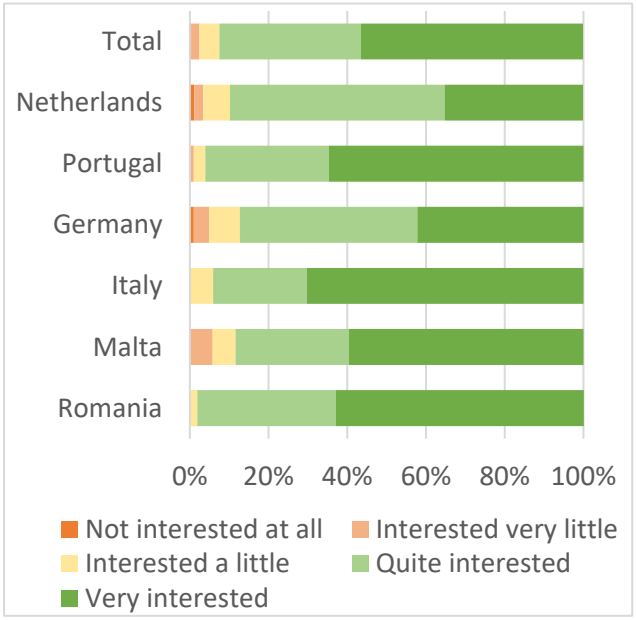
Q7 – How prepared do you personally feel for a disaster in your area?

The results of these two questions show an overall moderate correlation (r_S=.406), but ranging from weak connections in Italy, Portugal and the Netherlands to medium-strong links in Romania, Malta and Germany[16].

At the same time though, participants in all six locations expressed considerable interest in information about disaster preparedness, with overall more than nine out of ten participants being quite or strongly interested. Here, whilst the proportion between participants being "quite interested" and those being "very interested" varies between the different countries, the combined results of those two answer options are rather similar, ranging between 85% for Germany and 98% for Romania.

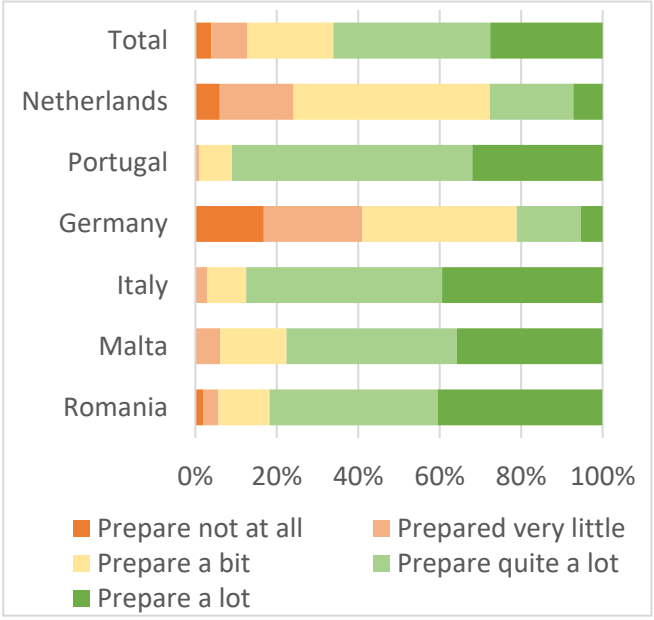
[16] See also Figure 5 for correlations in the total data, and Figures 7-12 for country-specific correlations.

Figure 3
Interest in information about disaster preparedness



Q8 – How interested are you in information about disaster preparedness?

Figure 4
Intentions to prepare for disasters



Q9 – To what extent do you intend to prepare for disasters?

However, there are significant differences between the extent to which participants in different countries intend to prepare for disasters. Whereas the large majority of participants in some countries intend to prepare quite a lot or a lot, i.e., ranging between 77% in Malta and 91% in Portugal, comparatively fewer participants in some other countries plan to do so (Netherlands: 28%; Germany: 21%). Accordingly, most country-specific data show weak to moderate relationships between interest in information about disaster preparedness and intentions to prepare for disasters, but rather disparate results for the Netherlands and Germany. Whereas in the Netherlands this correlation is moderate to strong (r_S=*.50*), in Germany there is no statistically significant correlation at all. A reason for this finding may be that, whereas the distribution of interest levels are rather similar between Germany and the Netherlands, the distribution of intended preparedness levels shows differing profiles: Almost half of the Dutch respondents (48%) indicated that they intend to "prepare a bit", but only 24% "very little" or "not at all", whereas the proportion of German participants who do not intend to prepare themselves at all or only very little is much higher (41%).

After analysing the results of the first round of Citizen Summits in 2016, it was decided that the responses to these somewhat abstract questions about the participants' interest and intentions provided interesting insights into general attitudes and perceptions but were difficult to "operationalise" in disaster managers' daily practice. Therefore, in the second round of Citizen Summits in 2017 two additional questions were introduced, which explicitly asked participants for their expectations and participation in preparedness activities within specific time frames. The answers provide a more detailed picture (see Tables 3 and 4 below). Most of the participating citizens displayed a keen interest in receiving information about how to prepare themselves and their family/friends for a disaster, with the majority (ranging from 62% (Netherlands) to 93% (Portugal)) indicating that they would like to receive such information **at least once per year**. Furthermore, many (between 41% (Netherlands) and 80% (Italy)) would like to **participate at least once every 1-2 years**

in training activities (e.g., emergency drills or workshops) that would help improve their and their family's/friends' safety in case of a disaster.

Table 3

Frequency of receiving information about disaster preparedness

How often would you like to receive information about how to prepare yourself and your family/friends for a disaster?

% of respondents	Italy	Germany	Portugal	Netherlands
Never	0%	1%	0%	2%
Only when there is an increased disaster risk	16%	20%	7%	33%
Once per year	33%	36%	19%	27%
Once every 6 months	29%	27%	41%	28%
At least once every 3 months	22%	13%	33%	7%
Not sure / no answer	0%	4%	0%	3%

Table 4

Frequency of participating in training activities

How often would you like to participate in training activities, e.g. emergency drills or workshops, that will help improving your and your family's/friends' safety in case of a disaster?

% of respondents	Italy	Germany	Portugal	Netherlands
Never	0%	2%	1%	9%
Only when there is an increased disaster risk	10%	13%	12%	29%
Every 3-5 years	10%	20%	12%	15%
Every 1-2 years	33%	34%	27%	25%
At least once per year	47%	29%	48%	16%
Not sure / no answer	0%	3%	0%	6%

Not surprisingly, the results of these two questions are moderately to strongly correlated in three countries[17] but there is no statistically significant correlation in the German data. This lack of a relationship between interest in information and interest in training activities, in combination with the low general preparedness intentions (as shown in Figure 4 above) but rather high interest in both "types" of preparedness (as shown in Tables 3 and 4 below) is intriguing. It may indicate that although the German participants do not have general inertia nor lack of general interest in disaster preparedness, there is a need for more targeted activities that meet the specific interests of different groups.

The generally strong interest documented in the quantitative data was supported by the qualitative data[18]. During the discussion groups in the Italy and the Germany Citizen Summits, several participants expressed their willingness to participate in free emergency preparedness and response courses, and the majority of participants were very interested in disaster simulation exercises.

[17] Netherlands: r=.558; Portugal: r=.574; Italy: r=.481.

[18] The topic of participation in disaster preparedness courses/workshops and disaster simulation exercises was specifically discussed in Citizen Summits 3 (Italy) and 4 (Germany).

Beyond a certain "why-not" attitude and a perceived general usefulness, in particular German participants with young children indicated the fact of having children as one of the main motivators for participation, i.e., to ensure their family's safety, despite limited spare time due to work and family duties. All of these activities were seen by both Italian and German participants as useful to promote social cohesion, strengthening solidarity between the participating citizens, and creating a sense of community before a disaster occurs. They were also perceived as an opportunity to learn about emotional responses, self-control, and the general processes in disaster management, aiming to understand in which situation a citizen's active contribution is helpful, and when to better stand back and contribute in a more "passive" manner.

Specifically the participation in simulation exercises was perceived as holding the potential for an increased mutual understanding and trust between practitioners and citizens, in particular through a better understanding of the general processes involved. It was highlighted by some that there is a risk that people may predominantly want to participate in simulated disaster scenarios due to the "fun factor"., But it was also argued that the inclusion of such cultural groups ("adventure seekers") may still have a positive long-term effect by creating sustainable interest in disaster preparedness.

Additionally, the qualitative data provided examples how disaster preparedness, and related behavioural intentions, are embedded in local cultures[19]. In Romania, participants described their disaster preparedness as predominantly information-based and individualistic (being informed or personally gathering information about procedures from authorities), whilst in Malta participants embedded their disaster preparedness more in social relations and social activities (family discussions, community meetings, neighbourhood help). At the same time, Maltese participants explained their potential lack of preparedness as a specific "cultural trait" related to living in pleasant surroundings, and due to a reliance on "Maltese resourcefulness" in times of need. Similarly, differences were found in the participants' self-perception related to behavioural intentions in a disaster situation. Whereas in the Maltese groups the discussion revealed a general attitude that "everyone can help" and that every citizen has some skills that can be useful in a disaster situation, in the Romanian groups participants described themselves as more "cautious", exercising "self-control" and trying not to obstruct or hamper the efforts of authorities, stating they would "offer services and obey directions".

However, most participants in both the Romanian and the Maltese Citizen Summit expressed a strong willingness to help their fellow citizens with actions that blurred public and private spheres in such situations, ranging from erecting tents in their garden to offering one's own kitchen to prepare food. But, again, Romanian participants described their approach as pragmatic and an individual attitude, whereas Maltese participants explained such social solidarity as a specifically Maltese trait and, thus, transforming a personal value into a cultural value.

[19]The topic of general preparedness and behavioural intentions in case of a disaster was discussed in Citizen Summits 1 (Romania) and 2 (Malta).

4.2. Citizens' Feelings and Perceptions of Disaster Risk

As one of the overarching topics of the CARISMAND project, participants were asked about their feelings and perceptions of disaster risk at different points during the event[20]. Not surprisingly, results show the lowest level of disaster risk perceived by the participating Dutch citizens, and the highest level of perceived risk by the Romanian citizens (the latter for the risk of man-made disasters[21]). Generally, in the Netherlands, Italy and Malta[22] summits more participants found their local disaster risk to be low or very low, whereas in Romania, Germany and Portugal more participants perceived their local disaster risk as high or very high.

Similarly, participants' worries about disasters were lowest in the Netherlands, and highest in Portugal. Additionally, during the course of each summit these feelings seemed to change. When participants were asked again later in the day about whether they were concerned about disasters in their area, results show an increase when compared to those who had reported being worried about the same thing earlier. This may well be an effect of (temporarily) increased risk awareness due to the information provided during the event. This effect appeared to be strongest in the Netherlands, followed by Italy, Malta and Romania. In Germany and Portugal there was no statistically significant difference between "worry" at the start of the event and "concern" at the end of the event about disasters in local areas, though "worry" was already at an elevated level at the start of the event. However, whereas the Portuguese data revealed considerable differences between levels of perceived risk and levels of worry/concern, the German data showed very little difference in the results across all three questions.

Table 5

Feelings and perceptions of disaster risk

	Perceived disaster risk in my area		Worried about disasters in my area		Concerned about disasters in my area	
	Mean	STD	Mean	STD	Mean	STD
Romania	3.32/3.43[a]	0.823/1.008[a]	3.92[b]	0.885	4.23	0.765
Malta	2.62/3.28[a]	0.883/0.986[a]	2.93[b]	1.115	3.45	1.019
Italy	2.51	0.759	3.16[b]	0.962	3.82	1.019
Germany	3.38	1.028	3.40	1.215	3.49	1.128
Portugal	3.32	0.866	4.13	0.933	4.21	0.809
Netherlands	2.00	0.778	1.90[b]	0.895	3.08	1.191

_____

Q14: How high or low do you think is the risk that a disaster occurs in the area where you live? (5-point Likert scale with 1=very low, 5=very high).

[20] In order to achieve adequate internal consistency but without using exactly the same wording, these questions are based on the 5-item measure developed by Kellens et al (2011) with a Cronbach's Alpha of 0.80 for the perception of flood risk, adapted to disasters in general (see Kellens, W., Zaalberg, R., Neutens, T., Vanneuville, W., & De Maeyer, P. (2011). An analysis of the public perception of flood risk on the Belgian coast. Risk analysis, 31 (7), 1055-1068).

[21] In the first two Citizen Summits (Romania and Malta), this question was split into perceived risk of natural disasters and perceived risk of man-made disasters. As the group discussions during those summits revealed that participants had a rather blurred understanding of this categorisation, the question was rephrased for the following four summits and asked about the perceived level of disaster risk in general.

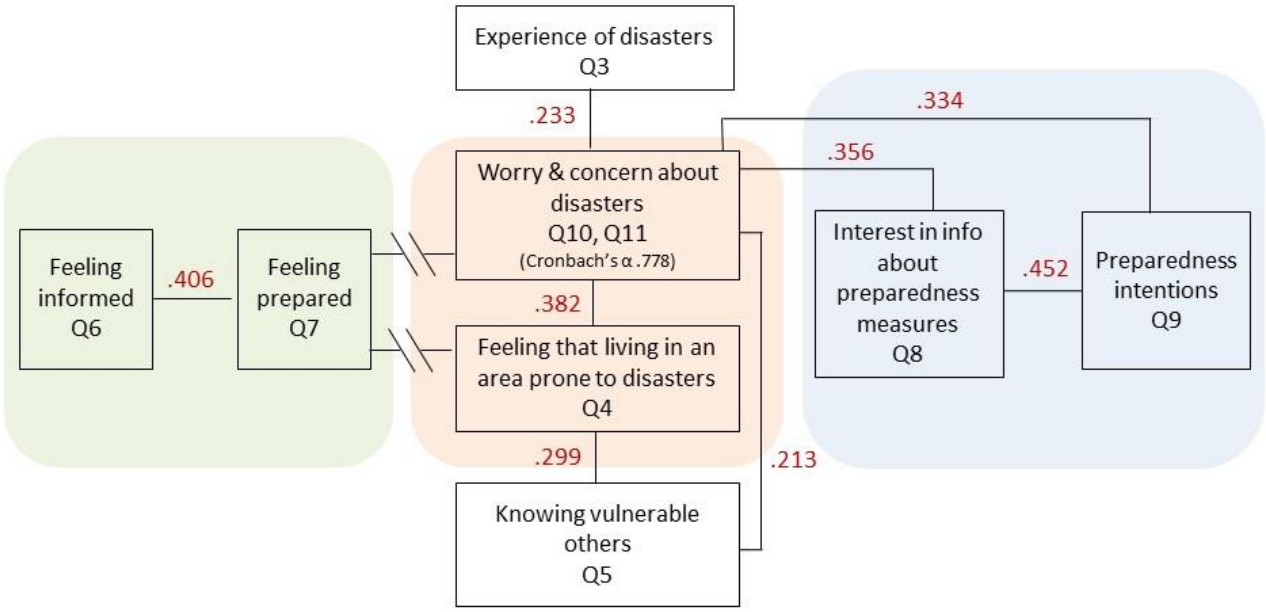
[22] For natural disasters only. For man-made disasters, more Maltese participants perceived the local disaster risk as high or very high.

Q15: How much do agree, or disagree, with the following statement "I am worried about disasters in the area where I live." (5-point Likert scale with 1=totally disagree, 5=totally agree).
Q16: How much do agree, or disagree, with the following statement: "When I think of disasters in my area, I feel concerned." (5-point Likert scale with 1=totally disagree, 5=totally agree).
[a] First number: perceived risk of natural disasters; second number: perceived risk of man-made disasters.
[b] Differences between Q15 and Q16 for these countries are statistically significant (p<.001).

Furthermore, the consolidated data for all six summits show that perceived disaster risk (feeling that living in an area prone to disasters) is not connected with any previous experience of disasters; this may, potentially, be explained by a number of participating citizens' experience being based on experiences of close friends or family members rather than direct experience. Neither is perceived disaster risk related to any increased interest in receiving information about disaster preparedness measures nor to any preparedness intentions. However, there is a weak link between disaster experience and feelings of worry and concern, and the latter are, in turn, moderately related to interest in information about preparedness measures, and to intentions to prepare.

Accordingly, given that worries and concerns are related to interest and potential behavioural change, but risk perception appears not to be, effectively motivating for an improved disaster preparedness may require appealing to citizens' emotions rather than merely informing about disaster risks.

Figure 5
Citizen Summit 1 to 6
Relationship between factors related to Attitudes towards Disaster Risk
Spearman's Correlations



Note: All correlations in this figure are statistically significant (p<.001).
Very weak correlations (r_s < 0.2) were not included in this figure.
For representation of disaster risk perception within this consolidated figure, Q4 rather than Q14 had to be chosen, because only Q4 was asked identically in all six Citizen Summits.

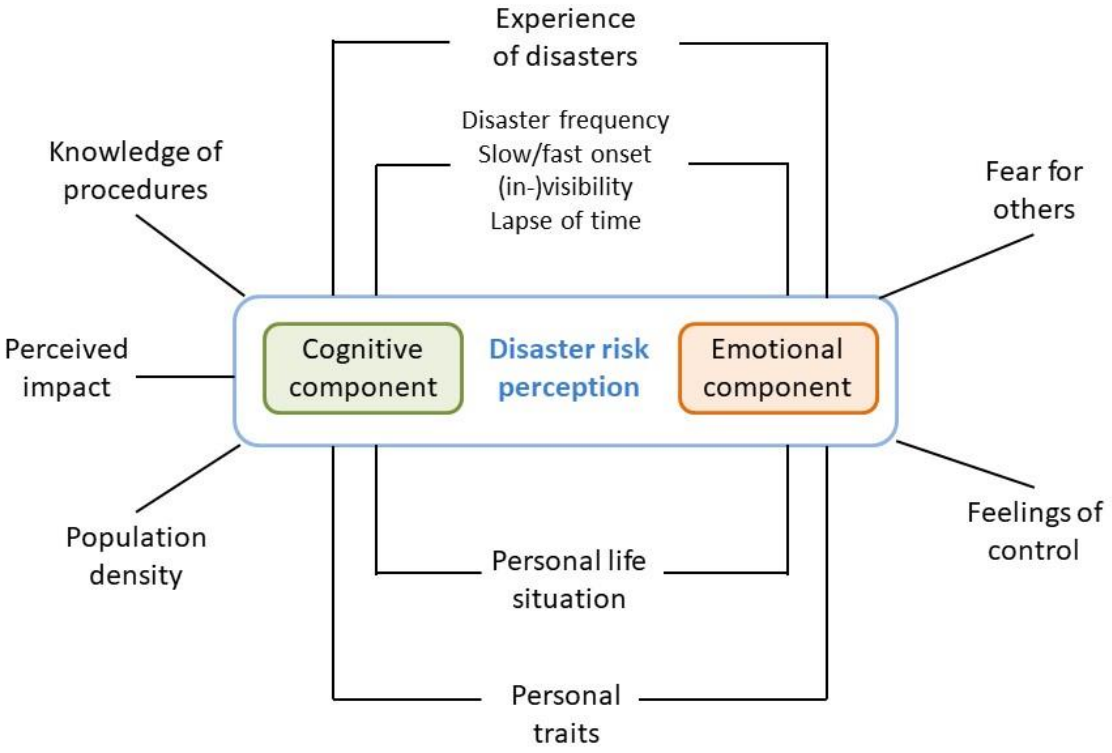
These results were complemented by exploring disaster risk perception from a qualitative angle, where the group discussions revealed factors which match, at least partially, those elaborated in the correlation model above (see Figure 5). Whilst it is not possible to "quantify" the weight of these

different qualitative factors, it appeared in the participants' narratives that some factors were more linked to a cognitive component and others more to an emotional component of disaster risk perception (see Figure 6 below).

Figure 6

Tentative Model of Disaster Risk Perception

Based on Qualitative Data



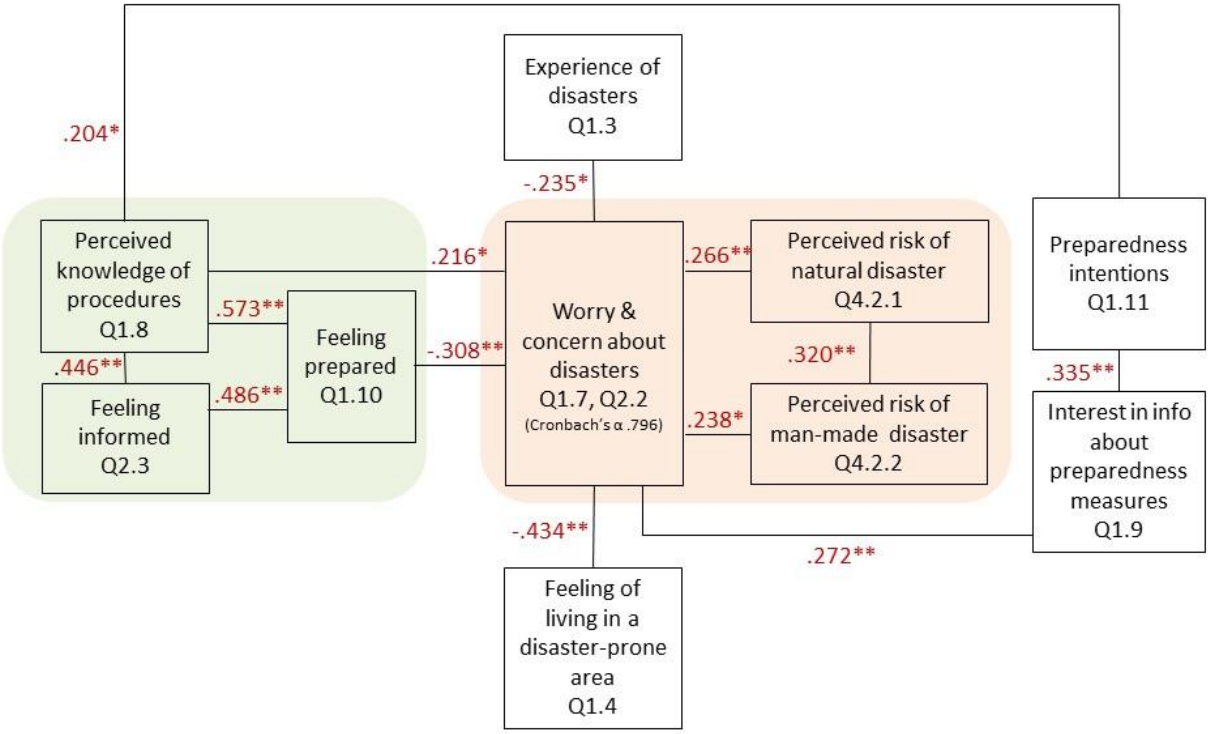
Whereas the relationships laid out in Figure 5 are present in the individual data sets for most of the six Citizen Summits, albeit to varying degrees, there are also some differences that are worth noting.

(a) In Romania, a country with a rather high level of both "objective" and "subjective" disaster risk, participants who are interested in information about preparedness measures are moderately likely to also intend to prepare for a disaster (R=.335. See Figure 7 for more details). People who are likely to think they live in a disaster-prone area are also more likely to feel worried or concerned about a disaster but, interestingly, they are less likely to be interested in information about preparedness. The combination of these findings may point at a certain level of perceived helplessness – a phenomenon that was found in other research conducted with Romanian citizens regarding their ability to become active citizens[23]. Such a phenomenon may best be

[23] Findings from CONSENT project ("Consumer Sentiment regarding privacy on user generated content (UGC) services in the digital economy"; G.A. 244643; project co-financed by the European Union under the Seventh Framework Programme for Research and Technological Development SSH-2009-3.2.1. "Changes in Consumption and Consumer Markets").

addressed through communication with the general public that honestly presents the facts, and regular comprehensive information campaigns.

Figure 7
Citizen Summit 1 – Romania
Relationship between factors related to Attitudes towards Disaster Risk
Spearman's Correlations



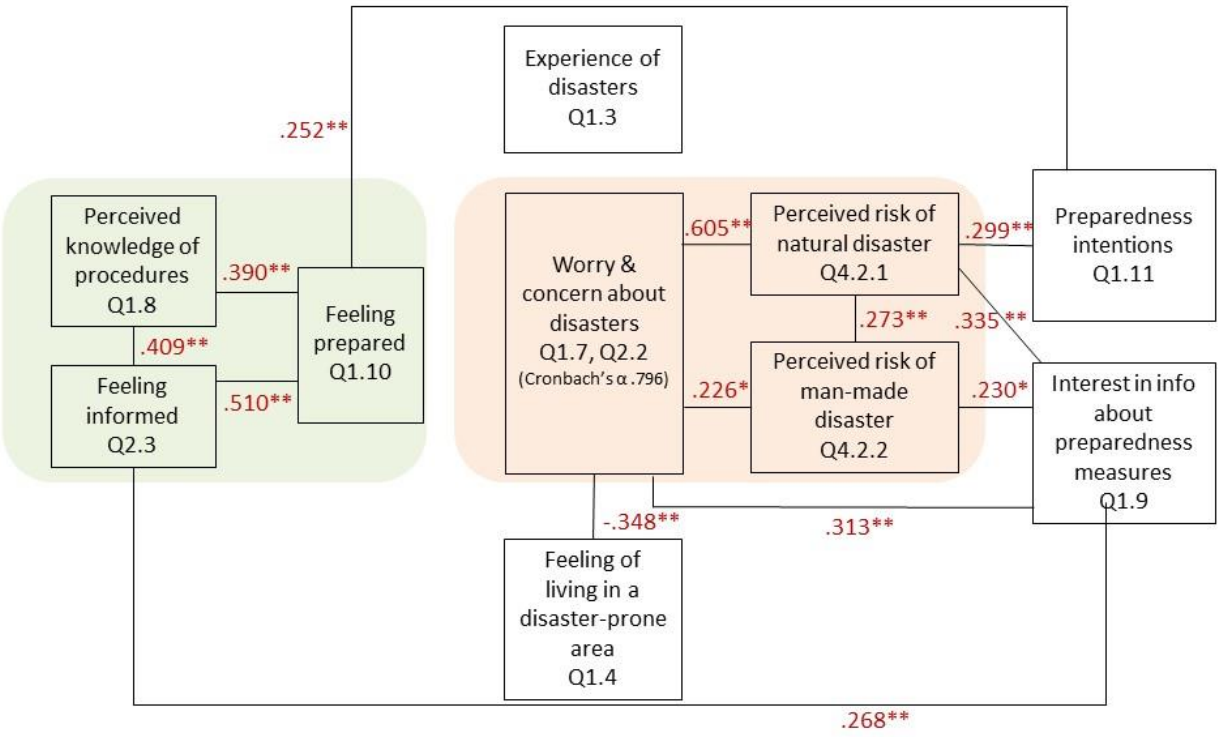
Note: Question numbers (Qx) may differ from those in the consolidated figures, given that in each round of summits additional questions were asked which required shifting some numbers. However, the wording in the respective questions remained identical throughout all six events. A matrix with all question numbers can be found in Appendix D.

* Significance p<.05

**Significance p<.001

(b) In Malta, a country with a rather low level of "objective" disaster risk participants indicated medium levels of subjective risk perception and feelings of worry/concern. Preparedness intentions are directly related to specific perceptions of natural hazards, whilst interest in information about preparedness measures is related to both disaster risk perception (natural hazards and man-mad hazards) and worries/concerns, with all these correlations being all rather weak. There is a strong link between perceived disaster risks (natural hazards) and worries/concerns. Disaster experience, on the other hand, is not connected to any of the other factors. This suggests that campaigns which aim at increasing the level of Maltese citizens' personal disaster preparedness may be more successful if they balance "objective" facts with information that appeals to emotions.

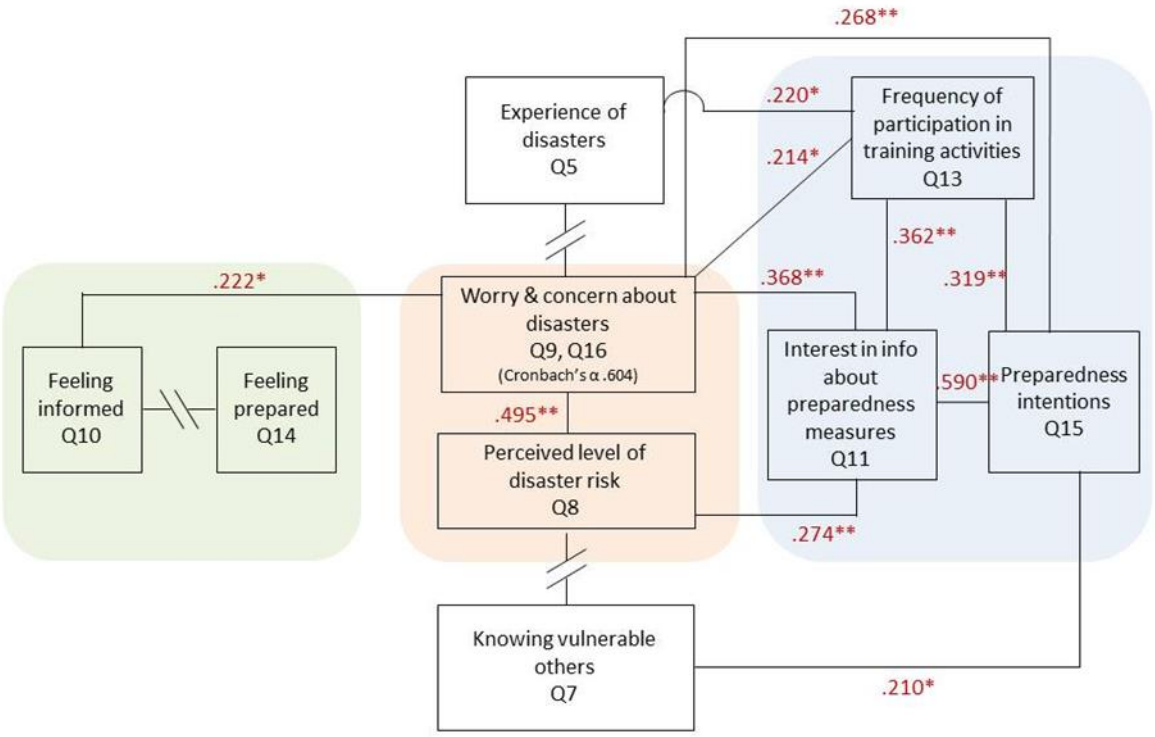
Figure 8
– Malta
Relationship between factors related to Attitudes towards Disaster Risk
Spearman's Correlations



Note: Question numbers (Qx) may differ from those in the consolidated figures, given that in each round of summits additional questions were asked which required shifting some numbers. However, the wording in the respective questions remained identical throughout all six events.
* Significance p<.05
**Significance p<.001

(c) In Italy the participants in the Citizen Summit were from the Rome area that can be considered a low-risk location but with an increased risk of natural hazards and recent experience of serious disasters in neighbouring regions[24]. Perhaps unsurprisingly, participants' preparedness intentions were related to their worries/concerns and to knowing vulnerable others but unrelated to their perception of (low) local disaster risk or their disaster experience. In such situations, measures that particularly address the emotional component of risk perception may be more likely to affect behavioural change.

Figure 9
– Italy
Relationship between factors related to Attitudes towards Disaster Risk
Spearman's Correlations

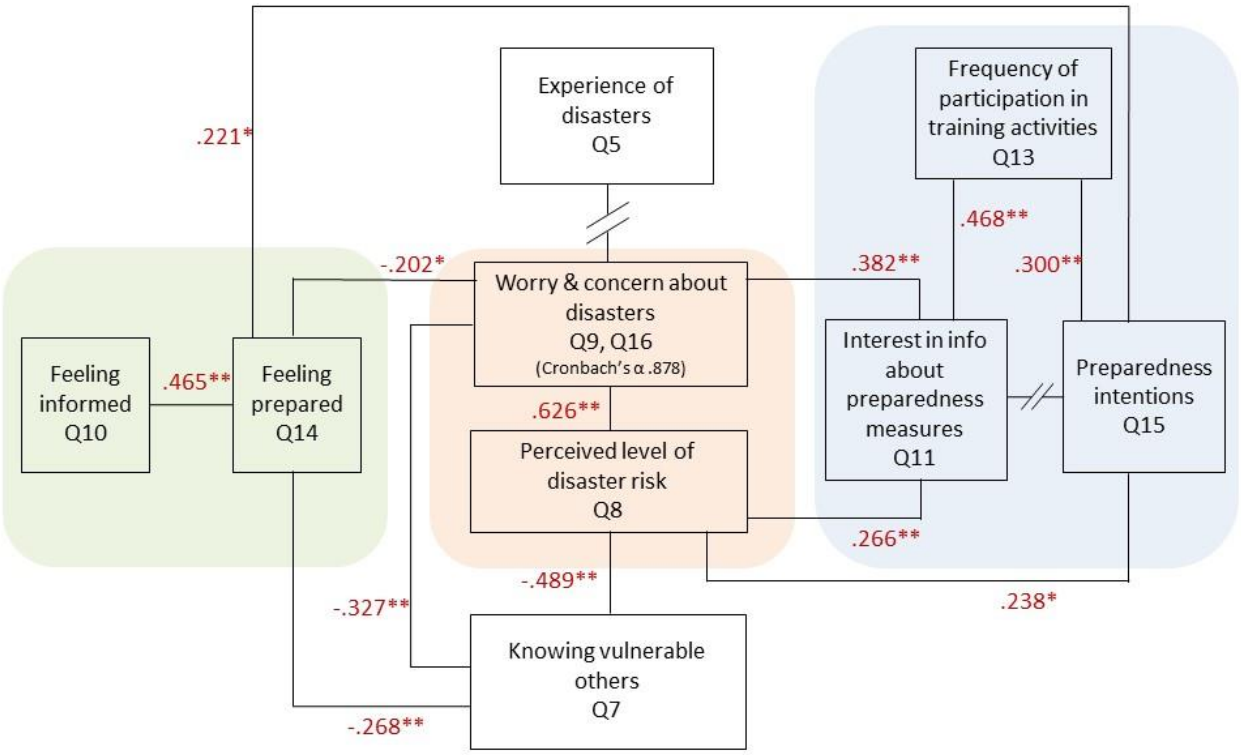


Note: Question numbers (Qx) may differ from those in the consolidated figures, given that in each round of summits additional questions were asked which required shifting some numbers. However, the wording in the respective questions remained identical throughout all six events.
* Significance p<.05
**Significance p<.001

[24] In particular, the Amatrice earthquake in August 2016 and the Rigopiano avalanche in January 2017.

(d) In Germany, where the Citizen Summit was held in a location that can be considered to be prone to an elevated level of man-made hazards, participants indicated elevated levels of both risk perception and worries/concerns about disasters. Interestingly, disaster risk perception and feelings of (lacking) preparedness were linked to preparedness intentions, but preparedness intentions were not related to worries/concerns about disasters. This result contrasts with the results in all other Citizen Summits. In light of the finding mentioned above (that participants' level of worries/concerns remained relatively stable, and at about the same level as their risk perception throughout the course of the event), it may suggest that for these German participants the cognitive component has a stronger influence on their behavioural intentions.

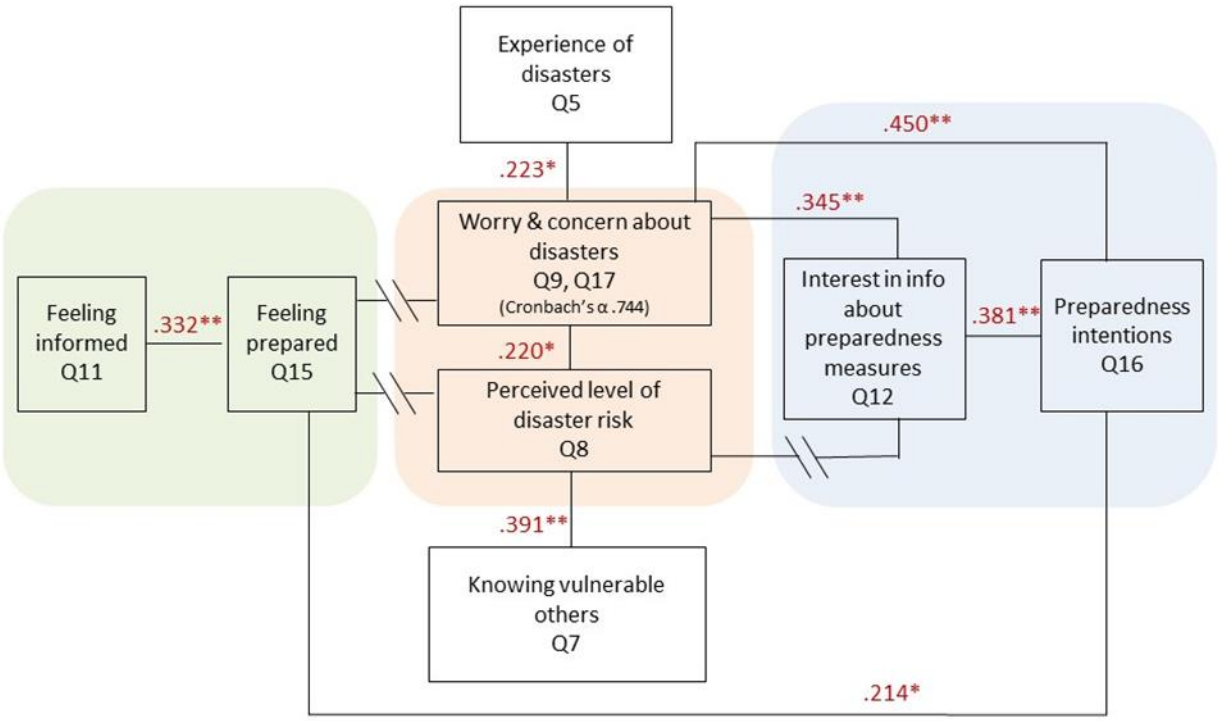
Figure 10
– Germany
Relationship between factors related to Attitudes towards Disaster Risk
Spearman's Correlations



Note: Question numbers (Qx) may differ from those in the consolidated figures, given that in each round of summits additional questions were asked which required an adapted numbering. However, the wording in the respective questions remained identical throughout all six events.
* Significance p<.05
**Significance p<.001

(e) In Portugal, where the Citizen Summit participants appeared to be strongly influenced by recent disaster experience, preparedness intentions were moderately related to worries and concerns. However, these worries and concerns show only a weak connection to disaster risk perception, which is very different to the findings in most other locations where risk perceptions are strongly connected to worries/concerns. A possible explanation for this result may be, that the participants' recent experience of a disaster, which was perceived by the general public as poorly managed, has led to a "disconnection" between perceived risk and feelings of risk.

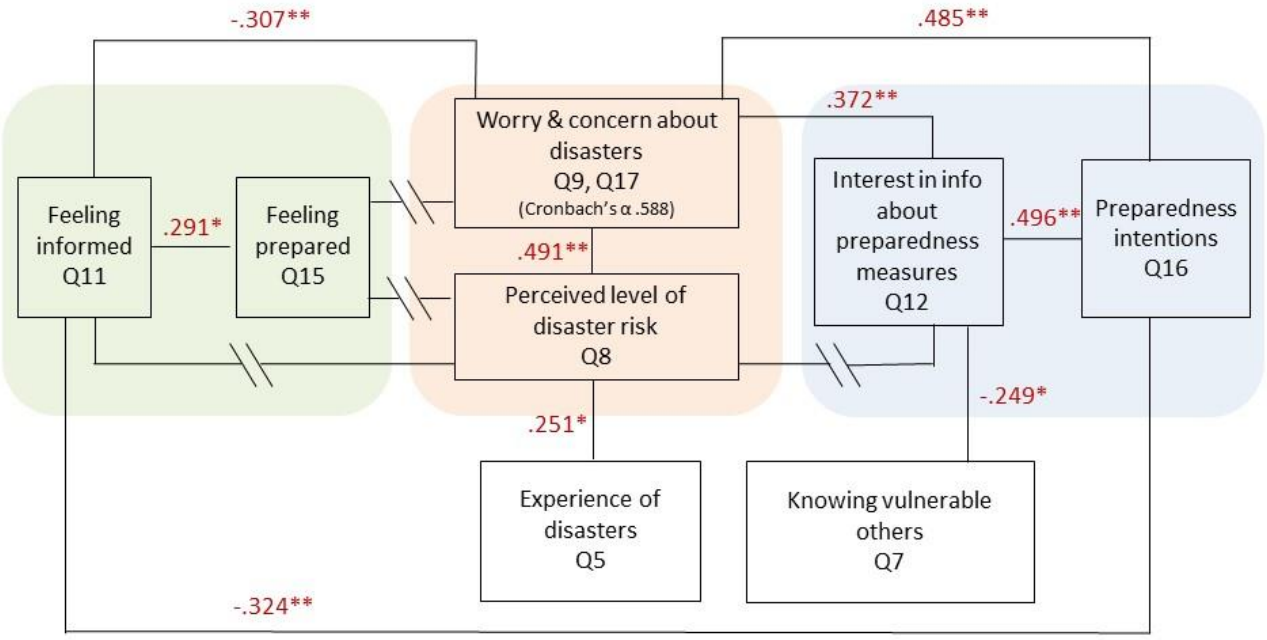
Figure 11
–Portugal
Relationship between factors related to Attitudes towards Disaster Risk
Spearman's Correlations



Note: Question numbers (Qx) may differ from those in the consolidated figures, given that in each round of summits additional questions were asked which required shifting some numbers. However, the wording in the respective questions remained identical throughout all six events.
* Significance p<.05
**Significance p<.001

(f) In the Netherlands, where the "objective" disaster risk in Utrecht as well as the Dutch participants' feelings and perceptions of risk can be seen to be low, the previously encountered link between worries/concerns about disasters and risk perception is revealed once more, as well as the missing (or weak) link between disaster risk perception and preparedness intentions. Interestingly though, there is a moderate negative correlation between preparedness intentions and participants feeling informed, that was not found in any other location. This finding may confirm previous research which suggests that, in the Netherlands, citizens' perception of very well-developed disaster protection mechanisms and trust in the authorities may result in an elevated level of inertia regarding personal preparedness measures.

Figure 12
– The Netherlands
Relationship between factors related to Attitudes towards Disaster Risk
Spearman's Correlations



Note: Question numbers (Qx) may differ from those in the consolidated figures, given that in each round of summits additional questions were asked which required shifting some numbers. However, the wording in the respective questions remained identical throughout all six events.
* Significance p<.05
**Significance p<.001

4.3. Usage of Social Media and Mobile Phone Apps

This set of questions was progressively built upon findings in Work Package 3 as well as the results from preceding Stakeholder Assemblies and Citizen Summits. Whereas in the first and second Citizen Summits the questions concentrated on traditional and social media, from the third Citizen Summit onwards the usage of mobile phone apps was also targeted, in order to explore the different possible functions expected, or desired, by citizens when using apps related to disasters.

The results show that, in all research locations, a large proportion of participants indicated that they were likely or very likely to use both mobile phone apps and social media in disaster situations. In all countries, social media are most likely to be used to inform oneself about a disaster, followed by warning or informing other social media users. The likelihood of using social media to submit information about disaster risks or disasters to local authorities or emergency services is lowest in all locations, but still ranges between 50% of participants in the Netherlands and 71% in Romania who indicated that they were likely or very likely to do so. These results suggest that the development of social media applications in disaster management should target multi-functional solutions which allow different information flows, i.e., authorities to citizens, citizens to authorities and citizens to other citizens.

Figure 13
Likelihood of social media usage in disaster situations

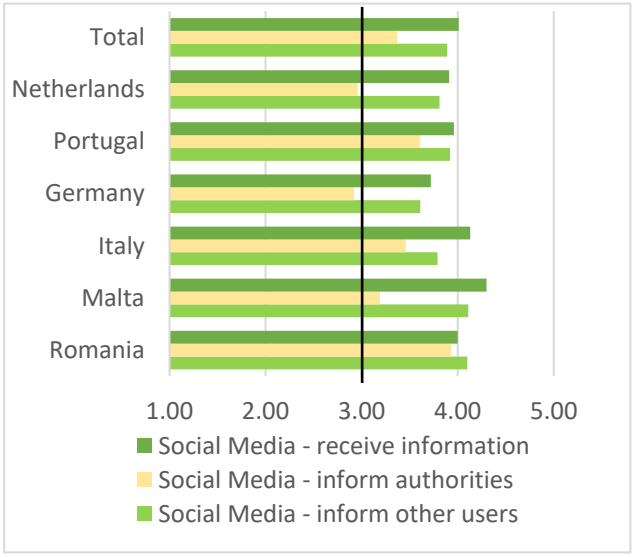
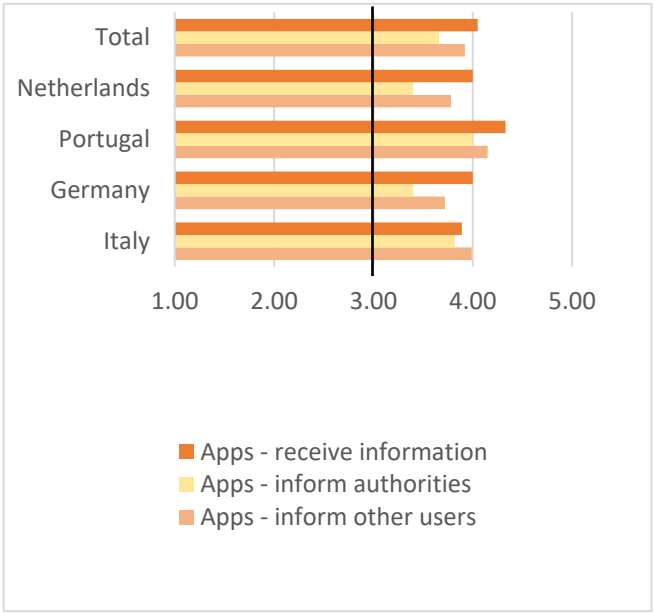


Figure 14
Likelihood of mobile phone apps usage in disaster



In the case of a disaster, how likely are you to use a **mobile phone app** that is specifically made for disaster situations to…
- receive alerts, warnings or emergency-related information from local authorities / emergency services.
- submit information about disaster risks or disasters to local authorities / emergency services.
- warn/inform other app users.

In the case of a disaster, how likely are you to use **social media** to…
- inform yourself about the disaster.
- submit information about disaster risks or disasters to local authorities / emergency services.
- warn/inform other social media users.

(Answers for all questions provided on a 5-point Likert scale with 1=very unlikely and 5=very likely)

A similar picture emerged regarding the use of mobile phone apps in disaster situations. With the exception of Italy, in all Citizen Summit locations the likelihood of using mobile phone apps to receive warnings, alerts or emergency/disaster-related information was highest, followed by the likelihood to warn or inform other app users. The likelihood of using mobile phone apps to submit disaster-related information to authorities was again lowest, but generally higher that the likelihood of social media usage for the same purpose. In this context, the group discussions revealed a number of desired features of such "disaster app". Most prominently, the participants felt that it should be authored and led by a public authority – either Civil Protection or a supra-national entity at EU-level. Participants expressed their expectations that it should allow authority-to-citizen, citizen-to-authority, and citizen-to-citizen communication, and it should include functions for both disaster response and disaster preparedness. Another important aspect was the expectation of most participants that such an app should be automatically pre-installed when purchasing a new phone, which highlights the important role they assign to it also in their everyday lives.

Furthermore, the quantitative data showed a number of interesting relationships between usage of mobile phone apps and social media in disaster related communications (see Table 6 below). Firstly, participants who indicated that they were likely to use one function of such mobile phone apps (e.g., to receive alerts), were also likely to use the other functions (submit information to authorities, warn other app users). Amongst the suggested use of social media in disaster communications, these correlations are also visible but not as strong. Participants who responded that they were likely to use social media sites for informing themselves were also rather likely to submit information to authorities via these sites, and to warn or inform other social media users. Accordingly, implementing mobile phone apps for crowd sourcing in disaster management may hold a higher potential for authorities to actually receive information from citizens than using social media for that purpose.

This was supported by the qualitative data which revealed that particularly older participants in the Italy and the Germany Citizen Summits had a somewhat critical attitude towards social media yet showed the most positive response towards using and testing a "disaster app". This contradicts the cultural stereotype of older people being generally more technology-averse. In the Italian discussion groups, such apps were not only seen as contributing to community-building amongst citizens, but they were also imagined as contributing to the development of a specific "culture of preparedness", based on the common interest in new technology use. The qualitative data revealed that social media were, often, equalled with Facebook and, exclusively, with social media messages from private individuals. Many participants were unaware of public authorities' social media sites/profiles. Those participants who had known or used such sites before trusted these sites considerably more than social media messages from private media channels or other individual social media users. In the German discussion groups, and contrary to these participants' general feelings of distrust towards the German police in effective disaster response as indicated by the quantitative data, social media sites from the police were highly appreciated and trusted. This may be interpreted as these participants' trust being based not on their perceptions of the police forces' physical disaster response, but on the police's perceived ability to provide truthful and timely information. It also points at the potential of social media to rebuild citizens' trust in the police by taking up this role of a trustworthy information provider at times where both private and public media channels are increasingly distrusted.

Another interesting finding in this context is the significant correlation between mobile phone app usage to submit information to authorities in disaster situations and social media usage for the same

purpose, which is a relationship that was not found across apps and social media usage for the other two functions. This link was strongest in Germany (*r*=.636) and the Netherlands (*r*=.582), but only weak or very weak in Portugal (*r*=.314) and Italy (*r*=.191).

Table 6

Mobile phone apps and social media usage in disasters

Pearson's Correlations

	Apps - receive information	Apps - inform authorities	Apps - inform other users	Social Media - receive information	Social Media - inform authorities
Apps - inform authorities	0.64				
Apps - inform others	0.59	0.68			
Social Media - receive information	0.16	0.25	0.27		
Social Media - inform authorities	0.24	0.49	0.39	0.49	
Social Media - inform other users	0.09	0.28	0.35	0.60	0.57

Note: All correlations in this table are statistically significant (p<.001).

Accordingly, this result may be interpreted as a specific usage that is strongly motivated by the German and Dutch participants' general interest in cooperating with authorities, rather than being bound to a specific type of technology. At the same time, it may point at location-specific trust relationships between citizens and authorities.

4.4. Trust in authorities

The topic of trust in authorities was chosen for the second "round" of Citizen Summits based on the findings in the literature review of Work Package 4, as well as the results from the 2nd Stakeholder Assembly, which both outlined the important but often contradictory role of trust between citizens and disaster managers. Quantitative questions were asked in three specific "sets":

- The first set generally sought to explore different levels of expectations towards, and trust in, different authorities/institutions;
- the second set specifically targeted trust in different social media sources, a topic which had been raised by practitioners during the 2nd Stakeholder Assembly;
- the third set targeted another topic brought up during the 2nd Stakeholder Assembly, exploring trust further and understanding it as a bi-directional relationship between citizens and disaster managers. It was also intended to complement the research regarding citizen empowerment in Work Package 7.

A similar structure was followed in the discussion guidelines for qualitative data collection.

The results showed a rather similar picture in both Citizen Summit locations. The strongest perceived effectiveness was assigned to the fire brigade, civil protection, and medical emergency services, whereas less than half of the participants perceived the media and the local police to be effective or very effective in providing help in case of a disaster. An almost identical picture was revealed for these authorities' respective trustworthiness in case of a disaster, although German participants showed significantly more trust in their local Police and medical emergency services than their Italian counterparts, but less trust in (and less perceived effectiveness of) the Fire Brigade.

Table 7

Perceived effectiveness and trustworthiness of different authorities in disaster situations

	Trust or trust a lot		Effective or very effective	
	Italy	**Germany**	**Italy**	**Germany**
Civil Protection	75%	74%	70%	67%
Local Police	19%	42%*	17%	34%
Medical Emergency Services	69%	74%*	68%	69%
Fire Brigade	96%	80%*	97%	87%*
Voluntary Aid Institutions	54%	52%	53%	56%
The Media	28%	33%	28%	45%*

_____

Trustworthiness: When you think of [respective authority], how trustworthy do you think they are? (1=not trustworthy at all, 2= not trustworthy, 3=neither untrustworthy nor trustworthy, 4=trustworthy, 5=very trustworthy, 6=I'm not sure).
Effectiveness: When you think of [respective authority], how effective in providing help do you think they are in case of a disaster? (1=not effective at all, 2=not effective, 3=neither ineffective nor effective, 4=effective, 5=very effective, 6=I'm not sure).
*Note: Results between countries marked with an asterisk are significantly different ($p<.05$).

In this context, the qualitative data indicated that low levels of trust in the media were mostly related to sensationalist crisis reporting. At the same time, though, participants in both Italy and Germany outlined the positive media coverage of professional response in case of natural hazards-caused disasters as particularly trust-building. They felt that "success stories" sell well in the media and could, in particular when the rescue forces were deployed abroad, be a source of trust through (national) pride.

Regarding the low levels of trust in the local police, participants in both summits explained during the discussion group sessions that this arose from perceiving the police as more interested in keeping order (e.g., relating to traffic and parking offences) than to helping the general public. However, others elaborated that, despite their feelings of distrust in the police, they feel a form of citizen duty. Here, very interestingly, a number of Italian participants distinguished between (dis-)trust as the prevalent feeling and trust as normative behaviour, and they described their difficulties to bring those two in line with each other, which complements a previous finding from the first Citizen Summit[25]. There, Romanian participants had expressed their distrust in the authorities, relating it to a perceived lack of effectiveness in disaster response, but rationalising simultaneously that such attitude may be counter-productive, because "the authorities can't help if you don't trust them". This may be interpreted as (dis-)trust arising from personal experience and expectation being at odds with trusting behaviour which is embedded in the acceptance of hierarchical structures as a cultural norm, creating ambivalent feelings about the relationships between citizens and authorities in disaster situations.

An additional cultural aspect was brought up during the group discussions in the German Citizen Summit, where several participants with a migration background from South-Eastern Europe and Russia expressed their feelings of trusting authorities more in Germany than in their native countries. Other participants who grew up in Israel or lived there for an extended period of time described a yet different trust relationship between citizens and authorities, indicating that in Israel they felt a stronger "closeness" between citizens and the police forces, whereas in Germany they perceived a "dividing line". Accordingly, it cannot be assumed that groups of the population with a non-native background (migrants, expatriates, etc.) will, in any case, distrust authorities in a disaster situation. On the one hand, this may be the case for those recent migrants who still have very "fresh" experiences of rejection, corruption and/or are coming from war-torn countries. On the other hand, migrants or expatriates who have settled and strongly identify themselves with their new home and the new environment may, through their increased level of trust in authorities, be of particular help as informal liaison persons who can mediate between affected citizens and disaster managers.

Furthermore, the quantitative data revealed generally strong relationships[26] between the perceived effectiveness of and trust in a specific authority, for example, if participants perceived the effectiveness of the fire brigade to be high, they would also indicate a high level of trust in the fire brigade. Likewise, a lower level of perceived effectiveness of the local police is strongly related to a lower level of trust in the local police. This finding applies to both Italy and Germany, and the

[25] Although the topic of trust in authorities was not specifically targeted in the first "round" of Citizen Summits, it was brought up by Romanian participants during the discussion group sessions in the context of behavioural intentions in disaster situations.

[26] Between r=.837 for the fire brigade (Italy) and r=.617 for the media (Germany); only for Civil Protection it is slightly lower but still r=.533 (Germany).

qualitative data showed accordingly that participants frequently drew a connection between speed of response (and thus effectiveness) and trust.

However, there are some country-specific differences in the links regarding trust and/or perceived effectiveness between the different authorities. In Germany, the strongest correlations were found between trust in, and perceived effectiveness of the medical emergency services[27]. Under the assumption that this is the authority/public service most participants may have had personal experiences with, it may be concluded that its reputation in responding to smaller-scale incidents influences citizens' perceptions and feelings towards other authorities in disaster management. At the same time, the comparatively lower perceived effectiveness of and trust in local police forces which is also likely to be shaped by the participants' everyday experiences appears *not* to affect their perceptions and feelings towards other authorities. These conclusions were, again, supported by the qualitative data, where German participants explicitly drew a connection between perceived effectiveness and general feelings of trust, but rejected a link between perceived lack of effectiveness and general feelings of distrust.

In the data from the Italy Citizen Summit, though, there were no strong links regarding trust and/or perceived effectiveness between the different authorities.

Further, the generally low trust in the media in disaster situations as shown above (see Table 7) cannot simply be transferred to trust in social media messages. Here, the data in both Italy and Germany reveal a considerable difference between the respective information source. Whereas between 64% (Italy) and 58% (Germany) of the participants indicated that they trust (or trust a lot) messages from local authorities (and only 5% in Italy and 13% in Germany distrust or distrust a lot), only about one out of five participants in either summit answered that they trust (or trust a lot) messages from other private social media users.

Table 8

Trust and distrust in different social media sources in a disaster situation

	Italy		Germany	
	Mean	**STD**	**Mean**	**STD**
Trust in local authorities	3.76	0.812	3.58	0.945
Trust in private users	2.95	0.908	2.87	0.853

Trust in local authorities: Imagine there is a high risk that a disaster will occur in the area where you live. If you use social media, how much would you trust, or mistrust, messages from local authorities?
Trust in private users: Imagine there is a high risk that a disaster will occur in the area where you live. If you use social media, how much would you trust, or mistrust, messages from private users of social media?

Finally, and as outlined by disaster management practitioners during the second Stakeholder Assembly, citizens' trust in authorities may also be influenced by their belief in the extent to which local authorities and/or emergency services trust citizens in disaster preparedness and disaster response. The results in Table 9 below show that just over one out of eight participants in the Italian Citizen Summit, and one out of four in the German Summit, believed that local authorities trust or trust a lot that citizens are appropriately prepared in case of a disaster. Only 13% of participants in

[27] Between r=.548 and r=.648.

Italy and 16% in Germany believed that citizens are trusted to be able to respond appropriately, whereas almost half of the participants in both locations believed that citizens are distrusted, or distrusted a lot, to be able to respond appropriately in a disaster situation. However, no significant correlations could be found between these results and the participants' responses regarding *their* trust in the different authorities, contradicting the hypothesis that citizens may distrust, or trust authorities, because they feel that they themselves are distrusted or trusted.

Table 9

Citizens' beliefs of authorities trusting / distrusting citizens

	Italy		Germany	
Beliefs that local authorities / emergency services trust citizens that they are....	**Mean**	**STD**	**Mean**	**STD**
…appropriately prepared in case of a disaster	2.61	0.870	2.99*	1.181
…able to respond appropriately in a disaster situation	2.57	0.877	2.58	1.065

_____

Trust in appropriate disaster preparedness: How much do you believe that the local authorities/emergency services trust YOU, as a citizen, that you are appropriately prepared for a disaster?

Trust in appropriate disaster response: How much do you believe that the local authorities/emergency services trust YOU, as a citizen, that you are able to respond appropriately in a disaster situation?

*Note: Results between countries marked with an asterisk are significantly different ($p<.05$).

5. Recommendations for Citizens

As outlined in Chapter 1, the last "round" of Citizen Summits, held in Lisbon/Portugal and Utrecht/The Netherlands, was dedicated to the evaluation of Work Package 9 Toolkit recommendations that were specifically developed for citizens. These recommendations, in turn, were developed by building upon the results from Work Packages 2 to 8 and, wherever meaningful and possible, they "mirrored" the Toolkit recommendations for practitioners discussed during the Stakeholder Assembly 3 held in Lisbon in February 2018. Accordingly, participants were asked to discuss topics concerning the development of a personal "culture of preparedness", and regarding citizen participation in disaster preparedness and response activities.

5.1. Developing a personal "culture of preparedness"

People who are informed about local hazards and know how to prepare for, and respond to, disasters that may happen in their locality are more likely to be able to keep themselves and their families safe in the event of a disaster. Information about how citizens can prepare disasters is available from many different media. By making a habit of keeping an eye out for such information, actively collecting and discussing it with others on a frequent basis, and assuming the responsibility to do so, citizens have the opportunity to develop a personal "culture of preparedness".

The discussions around this topic in the Portugal Citizen Summit revealed general agreement amongst the great majority of participants in all groups that the development of such a "culture of preparedness" was desirable. At the same time, they expressed the opinion that a change of mindset would be required for some of the recommendations to be implemented, but they also felt that such cultural change was possible over time; as an example, many elaborated upon the changing attitude towards waste recycling amongst the Portuguese population.

In the Netherlands Citizen Summit, the discussions revealed an attitude amongst most participants which oscillated between inertia and interest. Many felt that it was the government's duty to inform citizens rather than citizens having to gather information themselves (see +/- evaluation of recommendations C and E). However, some also expressed the opinion that this responsibility should be shared between citizens and authorities. Additionally, a considerable number of participants expressed their specific interest in information about disaster risks and preparedness when going to other countries.

In both Citizen Summits, **the following aspects were mentioned most often in all discussion groups** and perceived to have the highest impact on improving citizens' disaster preparedness:

- **Changing the "little things"**, such as reading signs that contain emergency-related information or putting up emergency numbers with a fridge magnet, because they were seen as requiring comparatively little effort (recommendations A and D); and

- **Discussing with family members** emergency procedures, safe spots and meeting points in case of a disaster, because the participants felt that the safety of their loved ones is something they are responsible for (recommendation B).

In detail, the individual recommendations for implementation were evaluated as follows:

	Toolkit recommendations for citizens - set 1: Develop a personal "culture of preparedness"	**Participants' evaluation[28]**	
		CS5 LIsbon	**CS6 Utrecht**
A	• Be always on the look-out for publicly displayed information about how to prepare for disasters, which is often displayed in public places, e.g., posters and signs in buses, waiting halls, entrance areas of sports stadiums, shopping centres, concert halls or hotel lobbies. • Make a point of reading and memorising such information, and encourage people who are accompanying you, especially children, to do the same.	++	+
B	• Identify and memorise "safe spots" or "safe zones" in your homes, your workplaces, and your local area. • Keep in mind that such safe places may be different for different types of disaster. • Share and discuss these safe places with family members, friends and colleagues.	++	+
C	• Search online for reliable sources of information (e.g., the Civil Protection website) or ask your local council for information about how to prepare yourselves and your family and friends for disasters. • Download this information or ask the authorities to send you any available brochures. • Update yourself at least once a year.	+	+/-
D	• Set up personal emergency plans together with your family and friends by discussing emergency contacts, meeting points, means of communication etc. • Use simple reminders to have these emergency plans and information readily available (e.g., as a pic on your mobile phone, in your purse, or to stick on the fridge).	++	++
E	• Find out which information channels can be used in case of a disaster, e.g. websites or social media sites of your local police force, Civil Protection etc. • Make sure you know how to access them, bookmark the links and test them regularly. • Encourage and help other family members and friends to do the same.	+	+/-
F	• If you have a smart phone, find out what mobile phone apps are available in your country and local area that are specifically designed for disaster communication, such as providing warnings and alerts, recommendations for appropriate disaster preparedness and response, and important points of contact in case of a disaster. • Become familiar with the features of such apps and test them frequently. • Encourage friends and family members to download and use this app as well.	+	+

[28] For a detailed explanation of the evaluations see methodology section.

G	• If you enjoy playing online games, find out what serious games for disaster preparedness and response are available in your country and language; train yourself by playing them and encourage others to do the same. • If there are such games that were specifically designed for children, encourage your children to play them, or play them together; ask teachers or kindergarten staff to play them with the children regularly.	++/-	+
H	• If you travel abroad, make it a habit to gather in advance information about local emergency procedures, e.g. via websites of Civil Protection, Red Cross, your country's local embassy, or by asking at the hotel reception of your travel destination. • If you use mobile phone apps, find our whether there is a "disaster app" available in the countries where you travel, which provides emergency-related information and guidance in your language.	+	+

5.2. Taking part in disaster preparedness and response activities

Disaster preparedness and response training activities should take into account different cultural factors and the needs of different cultural groups in a disaster situation. To be successful, such activities require the active support of citizens from different cultural backgrounds. Citizens should participate in such disaster training programs on a regular basis. Additionally, they can contribute to the success by getting actively involved in the planning process, and by encouraging others to do the same.

This second main topic was also thoroughly discussed in all groups, and the majority of participating citizens in Portugal supported the suggested recommendations. The **strongest appreciation** and interest were expressed for **recommendations A (community workshops) and E (develop an awareness of useful personal skills)**, followed by the training events suggested in recommendations B and D. On the other hand, despite the participants' generally positive attitude towards the presented recommendations, there were several comments about **perceived difficulties in implementation**, in particular:

- A perceived lack of information about the availability of such training events;
- A general feeling that information about disaster-related training should be provided by the relevant authorities and not sought by citizens;
- A low level of trust in the local Councils' capabilities, and knowledge, to organise volunteering and/or such events;

Interestingly, only very few Portuguese participants revealed a "good-for-others-but-not-for-me" attitude or expressed time issues which, in their view, would inhibit the participation in the suggested activities.

In the Netherlands, the majority of Citizen Summit participants supported the same suggested recommendations as the Portuguese Citizen Summit participants, albeit with a slightly different weighting. The **strongest appreciation** and interest were expressed for **recommendation B (participation in training events to learn or refresh skills whilst improving cultural awareness)**, followed by the activities suggested in recommendations D (participation in disaster simulation exercises) and E (developing an awareness of useful personal skills). Often, these three recommendations were seen in combination, and in particular E was seen as an important part in activities related to both B and D. The participation in activities suggested under B and D were seen as particularly useful for building social cohesion in a multi-cultural society such as The Netherlands.

Recommendation C received positive as well as negative feedback in both Summits, with some participants arguing that "volunteering is not for everyone". Regarding recommendation F a number of participants felt that online gaming would be more for younger than for older people, and others questioned whether a game would be appropriate for a task as serious as disaster preparedness training.

In detail, the following individual recommendations for implementation were evaluated:

	Toolkit recommendations for citizens - set 2: Taking part in disaster preparedness and response activities	**Participants' Evaluation**	
		CS5 Lisbon	**CS6 Utrecht**
A	• Find out whether there are community workshops in your area on how to prepare for, and respond to, disasters. • If none are organised, ask your local council or civil protection authority to organise such workshops. • Take part in these workshops and use this opportunity to share your experiences of past disasters; discuss values and traditions that played an important role in these situations. • The active participation in such community workshops will help community members learn from each other about local hazards and disaster risks, and so strengthen community spirit for improve community responses in the event of a disaster.	++	+
B	• Find out about training events in your area, e.g. First Aid and CPR training, where you can participate; use these events to learn new skills or refresh old skills. • Such events are also an opportunity to train with fellow citizens from other cultural backgrounds, learn to identify and respect their specific cultural needs.	+	++
C	• Volunteer to get involved in the planning of emergency and disaster response activities (e.g., by contacting your local council, or Civil Protection), and encourage fellow citizens from different cultural backgrounds to do the same. • Your participation will help practitioners learn about cultural differences <u>before</u> a disaster occurs and adapt the respective guidelines and procedures accordingly.	+/-	+/-
D	• If there is the opportunity, participate regularly in disaster simulation exercises, which will help strengthening a sense of community, and increase the mutual understanding and trust between disaster practitioners and citizens.	+	+

	• Encourage friends and family members to do the same.		
E	• When you participate in disaster training activities, use these opportunities to think about and discuss with other participants and your trainers the personal skills you already have that could be helpful in a disaster, e.g. technical skills, communication skills, organising talent or detailed local knowledge.	++	+
F	• If you are involved in digital gaming design, for example as the developer of multi-player online games, a lecturer or a student in this area, help disaster managers to employ virtual reality as a training method. • This could be achieved by using serious game design for disaster preparedness as a study goal, or by including the theme of appropriate disaster response in the design of multi-player games.	+/-	+/-

6. Conclusion

CARISMAND Citizen Summits were designed as combined dissemination and data-gathering events. Results showed that although there was a substantial lack of knowledge amongst participating citizens in all locations regarding appropriate disaster preparedness and response, there was also a great interest in receiving more information and improving this situation. Additionally, participants revealed a strong general interest in such Citizen Summits. In particular, the feedback to the Toolkit recommendations discussed during the 5th and 6th Citizen Summit demonstrated their success as dissemination events in locations with very different levels of disaster risk perception and disaster experience.

At the same time, the qualitative data-gathering, which focussed on exploring the role of culture by using the broad definition of *"encompassing beliefs, attitudes, values and their associated behaviours that are shared by a significant number of people in hazard-affected places"*, allowed new insight into cultural factors beyond, e.g., ethnicity or religion. Cultural factors such as open-mindedness (in particular regarding technology acceptance) and attitudes towards authorities (in particular trust relationships) were found to play a prominent role. Other findings referred to local cultural norms and values, collective memory, or age-related and gender related roles.

The qualitative findings relating to cultural factors were combined with the quantitative findings, the latter with a stronger focus on disaster risk perception and its cognitive and emotional components. Whilst these results should not be interpreted as generalizable to the wider population, they point towards potential socio-cultural differences at a societal level.

Rather than developing "country-specific" recommendations which, in themselves, would equate "culture" with "nation" and, as such, contradict the more advanced definition of culture outlined above, findings have been used to develop recommendations for citizens which "operationalise" culture in different ways. On the one hand, they are targeting the inclusion of different cultural groups; on the other hand, though, cultural factors such as family values, peer acceptance, openness to technology and innovation, collective memory, trust in authorities or attitudes towards media have been incorporated in recommendations that address *all* citizens, to encourage behavioural change and develop a personal "cultural of preparedness".

Appendices

Appendix A-1

Time	Detailed Schedule & Content – Citizen Summits 1&2	Total running
[30 min.]	Participant registration & collecting consent forms	
15 min.	**Welcome; introduction / presentation CARISMAND project**	15 min.
15 min.	**Presentation: Organisation & logistics** Time schedule; breaks; refreshments Breakout rooms/locations; emergency procedures Incentives Distribution of voting keypads and technical instructions *[including test question]*	30 min.
20 min.[29]	**1. Question Set I:** *The first 6 questions in this set (Q3.1 – Q3.6) are taken directly from the recruitment questionnaire and provide some demographic and other basic participant information.* *Q3.7 is the first in a series of questions which ask for citizens' risk perception. This type of question is going to be posed to the audience several times, each time after providing additional information (e.g. via presentations, or after giving visual cues).[30] Furthermore, it is embedded between or preceding so-called transitional questions (here Q3.8) which lead towards the next presentation or exercise.* *Q3.9, Q3.10 and Q3.11 measure citizens' disaster preparedness intentions.*[31] 1.1 Gender *(1=female, 2=male, 3=choose not to say)* 1.2 Age *(numeric)* 1.3 Do you, or a close friend or family member, have ever experienced a disaster? *(1=yes, 2= no, 0=I'm not sure)* 1.4 Do you feel you are living in an area that is specifically prone to disasters? *(1=yes, 2=no, 0=I'm not sure)* 1.5 Do you know of any other people in your area where you live who you think are particularly vulnerable or exposed to disasters? *(1=yes, 2=no, 0=I'm not sure)* 1.6 Do you work as a volunteer in a community or self-help group*?* *(1=yes, 2=no)* 1.7 How much do you agree, or disagree, with the following statement: "I am worried about disasters in the area where I live."	

[29] The time for this (as well as for each following) set of questions is generously planned, allowing for app. 2 min. per question. It is envisaged that the presenter reads each question and all answer options out loud to the audience whilst they are shown on the presentation screen.

[30] In order to achieve adequate internal consistency but without using exactly the same wording several times, these questions are based on the 5-item measure developed by Kellens et al (2011) with a Cronbach's Alpha of 0.80 for the perception of flood risk, adapted to disasters in general (see Kellens, W., Zaalberg, R., Neutens, T., Vanneuville, W., & De Maeyer, P. (2011). An analysis of the public perception of flood risk on the Belgian coast. Risk analysis, 31 (7), 1055-1068).

[31] Questions are based on the 3-item measure (Cronbach's Alpha 0.86) developed by Terpstra (2011) for flood preparedness intentions. (see Terpstra, T. (2011). Emotions, trust, and perceived risk: Affective and cognitive routes to flood preparedness behavior. Risk Analysis, 31 (10), 1658-1675)

	(1=I totally disagree, 2=I disagree, 3=I neither disagree nor agree, 4=I agree, 5=I totally agree, 0=I'm not sure) 1.8 How much do you know about the guidelines and procedures your local disaster management authorities are following in case of a disaster? *(1=nothing at all, 2= not a lot, 3=something, 4=quite a lot, 5=a lot, 0=I'm not sure)* 1.9 To what extent are you interested in information about disaster preparedness? *(1=not interested at all, 2=interested very little, 3=interested a little, 4=quite interested, 5=very interested, 0=I'm not sure)* 1.10 How well do you personally feel prepared for a disaster in your area? *(1=not prepared at all, 2=not prepared, 3=neither prepared nor unprepared, 4=prepared, 5=well prepared, 0=I'm not sure)* 1.11 To what extent do you intend to prepare against disasters? *(1=Prepare not at all, 2=Prepare very little, 3=Prepare a bit, 4=Prepare quite a lot, 5=Prepare a lot, 0=I'm not sure)*	**50 min.**
15 min.	**Factual presentation about a local disaster simulation exercise (including short video if available)** *presented by moderator*	**1h 5min.**
10 min.	**2. Question Set II:** *Q5.1, Relates directly to the preceding presentation, asks citizens for their evaluation of simulation exercises. This question is directly based on the findings in the first Stakeholder Assembly where disaster practitioners described simulation exercises as improving cooperation, communication and trust.* *Q5.2 measures risk perception after being provided with "real life" information about actual disaster management practices.* *Q5.3 is a transition question introducing the next presentation topic (communication between authorities and citizens).* *Q5.4 and Q5.5 are transition questions as well, bringing in the additional aspect of media usage.* 2.1 What do you think about disaster simulation exercises like this? *(1=they are not important at all, 2=they are not important, 3=they are neither important nor unimportant, 4=they are important, 5=they are very important, 0=I'm not sure)* 2.2 How much do you agree, or disagree, with the following statement: "When I think of disasters in my area, I feel concerned." *(1=I totally disagree, 2=I disagree, 3=I neither disagree nor agree, 4=I agree, 5=I totally agree, 0=I'm not sure)* 2.3 How informed do you feel by the authorities of what you have to do in case of a disaster? *(1=not informed at all, 2=not informed, 3=reasonably informed, 4=informed, 5=very informed, 0=I'm not sure)* 2.4 Imagine that a situation in which there is a high risk of a disaster happening soon, and you feel this disaster may cause serious harm to your family or friends. What is the <u>first</u> thing you would do? *(1=Call the emergency services, 2=call family / friends, 3=Go to my neighbours, 4=Use social media to inform family / friends, 5=submit information via social media to local authorities/emergency services, 6=Get more information via the Internet, 7=Get more information from social*	

	networks, 8=Turn on the TV, 9=Turn on the radio, 10= Other, 11=I'm not sure) 2.5 What is the <u>next</u> thing you would do? *(1=Call the emergency services, 2=call family / friends, 3=Go to my neighbours, 4=Use social media to inform family / friends, 5=submit information via social media to local authorities/emergency services, 6=Get more information via the Internet, 7=Get more information from social networks, 8=Turn on the TV, 9=Turn on the radio, 10= Other, 11=I'm not sure)*	**1h 15min**
15 min.	**Presentation about the communication procedures between authorities and citizens in case of a disaster**	**1h 30min**
15 min.	**3. Question Set III:** *This set of questions builds upon the results from the 1st Stakeholder Assembly where practitioners expressed their perceived usefulness of social media, but only in the recovery phase. There, social media were ascribed an important role in re-establishing feelings of security through social cohesion and solidarity. However, for preparation, prevention and management of disasters, most practitioners appeared to prefer the use of traditional media which they believed to have a stronger impact and be more "trustworthy for the population".* *Q7.3 (and further elaboration of this topic in the focus group discussions in the afternoon) explores the potential of social media as a sustainable element in <u>all</u> disaster phases (for preparedness, see also Q5.4 and Q5.5).* 3.1 Do you use social media? *(1=yes, 2=no, 0=I'm not sure)* 3.2 Do you use a mobile phone? *(1=yes, 2=no)* 3.3 In the case of an ongoing disaster, how likely are you to use social media to: 3.3.1 inform yourself about the disaster 3.3.2 submit information about disaster risks or disasters to local authorities/emergency services 3.3.3 warn/inform other social media users 3.3.4 warn/inform family and friends 3.3.5 stay in contact with others during a disasters 3.3.6 provide help to others during a disaster 3.3.7 provide help to others? *(1=very unlikely, 2=unlikely, 3=neither unlikely nor likely, 4=likely, 5=very likely, 0=I'm not sure)*	**1h 45min**
15 min.	**Presentation about the use of social media in disaster management** *provided by moderator*	**2h**
15 min.	**Coffee break**	**2h 15min**
15 min.	**4. Introduction of moderators and discussion group logistics** (and guiding participants to the different breakout rooms)	**2h 30min**
10 min.	**5. Discussion group briefing** *Welcome the participants and assign them a seat. This is mandatory, in order to obtain their informed consent and to ensure that they understand what they have agreed to do. Explain to them that the audio recording of the discussion is necessary so as not to miss any of the comments given*	

	during the discussions. Start recording the meeting and inform the participants that the recording has begun. "Welcome and thank you for agreeing to participate in this discussion group. Your contribution is highly valued. My name is _____ and I will be chairing this group discussion. Our session will take about 90 minutes. Since we will be audio recording the discussion, I would kindly ask you to speak in a clear voice and one at a time; your opinions, experiences and suggestions are very important to this project, and we do not want to miss any of your comments." *At this stage, do not to provide any additional details on the content of the discussion group in order to avoid influencing and biasing the discussion! However, in case a participant asks, you can give them the general explanation that* "these discussions serve to understand how citizens feel and what they think about disasters". "As stated on the signed consent form, everything that will be recorded during this session will be used only for the purposes of this study and will be kept confidential, i.e. the recorded comments might be used in scientific publications and reports relating to this study, but only as anonymous quotes. I want you to make sure that you are comfortable enough to share your opinions with all the participants in the group. In order to facilitate this, I would like to ask everyone present to follow these ground rules: • We are interested in the opinion of each individual and we would therefore like to hear from all the people in the group. • There are no wrong or right answers. There are only different opinions. Consequently, we'd like you to respect each other's opinions. • It is important for us that only one person speaks at a time. Each opinion is important and I would kindly request that you don't speak when others are speaking, otherwise it will be difficult for us to capture all of your opinions. • I would also kindly request that you silence your mobile phones and thus provide for an uninterrupted discussion. Do you have any comments or other suggestions for these ground rules? Do you have any other important general questions before we start?" […] "So, let us start with each member of the group briefly introducing themselves. Let us go around the table. Tell us, please, your name or, if you prefer, your first name or a nickname, and a few basic things about yourself, for example your age, your occupation etc. Let me start by introducing myself…"	**2h 40min**
40 min.	**6. Group discussion topic 1: Perceptions and effects of natural and man-made disasters[32]**	

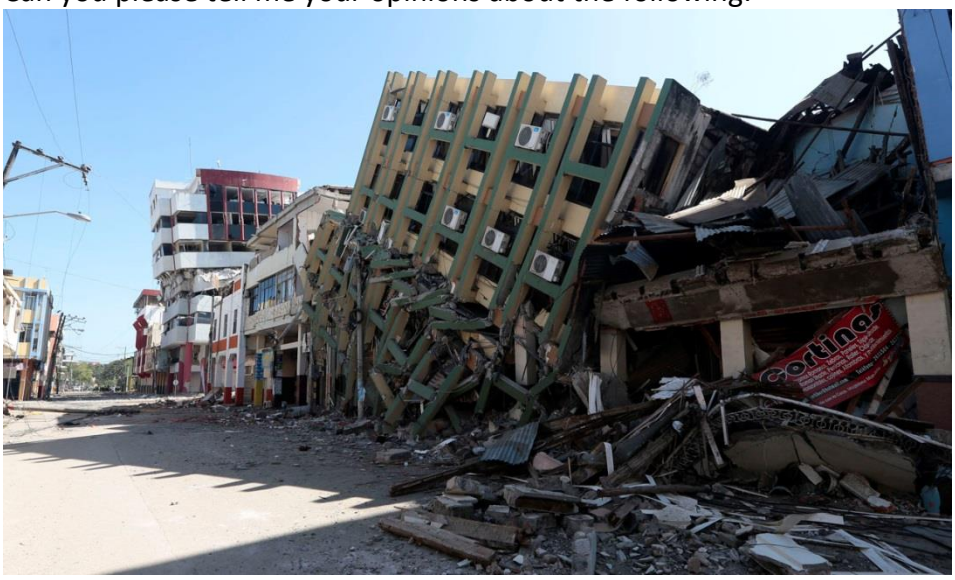
[32] It is widely by expert recognised today that disasters related to natural hazards, such as landslides, floods, earthquakes etc., are mainly man-made and only in small part linked to a natural event (e.g. the earthquake in L'Aquila, in 2009 destroyed the town with more than 300 deaths; the one in Ecuador, mentioned below, killed more than 660 people; but other earthquakes in Japan, of greater magnitude, were almost without consequences; the "difference" was in the quality of buildings, in the preparedness of people, etc. i.e. in man-made factors).

This topic was brought up in the 1st Stakeholder Assembly: the blurring distinction between natural and man-made disasters.[33] However, instead of presenting this distinction (which is still widely used in the literature) and ask participants to "choose", the intention of this set of questions is to explore whether citizens, actually, do think in the same categories as practitioners.

6.1 As a start, could you please write down on a sheet of paper three disasters you can spontaneously think of and that happened outside your country?

All participants should have a blank sheet of paper and a pen available to write these 3 disasters down. They can use the name of the location, but if they are not sure about the precise location they may also use terms such as "large fire in Australia", "earthquake in South America", "building collapse in Russia", "heatwave 2003 in Europe" etc. Please collect these sheets of papers and hand them in to the event organisers afterwards.

6.2 This picture shows some of the destruction after the earthquake in Ecuador on April 16th this year (2016), with a magnitude of 7.8, killing more than 660 people and leaving almost 28,000 injured.
Can you please tell me your opinions about the following:



6.2.1 Once people realise that something like this is happening, or going to happen, how much time do you think they would have to take action to keep themselves and their families safe? And what possibilities would they have had to be prepared?

Possibilities to prepare for a disaster could be, for example, listening to warnings issues by the authorities or informing oneself about emergency procedures, but also long-term strategies such as avoiding to work/live in or travel to certain areas that are prone to disasters.

If you were living in this area, how worried would you be about disasters like this?

[33] For the increasing complexity of disasters with multiple components see also e.g. Wachinger, G., Renn, O., Begg, C., & Kuhlicke, C. (2013). The risk perception paradox—Implications for governance and communication of natural hazards. Risk analysis, 33 (6), 1049-1065.

This question is aiming to explore whether the fast or slow onset of a disaster plays a role in the way people perceive disaster risks.

6.2.2 How long do you think it will take the people who live there to get back to a "normal" way of life after this disaster? How will it affect their lives? What, if anything, is going to change?

This question is aiming to explore how people feel about the short or long-term effects of a disaster, and how the experience of such disaster may, or may not, change their risk perception and/or behaviour. It should also explore potential positive effects (such as learning process, community resilience increase, people empowering, widening of volunteer actions, etc.).

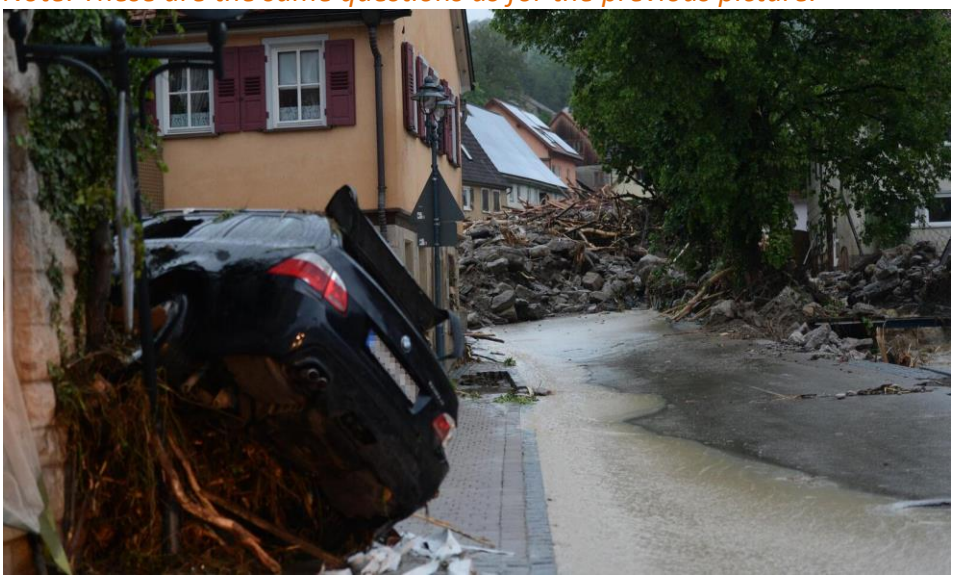
6.2.3 What do you think are the causes for this disaster?

This question is aiming to explore whether people, actually, think in distinct categories such as natural and man-made disasters, and to what extent such categorisation affects their risk perception.

6.3 This picture is a bit "closer" to our European homes: It shows the very recent aftermath of heavy rainfall and flooding in Southwest Germany in the night from May 29th to May 30th 2016, where 4 people died, amongst them a 13-year-old girl and a volunteer firefighter whilst trying to rescue a man trapped in a flooded railway station.

Can you please tell me your opinion about the following:

Note: These are the same questions as for the previous picture.



6.3.1 Once people realise that something like this is happening, or going to happen, how much time do you think they would have to take action to keep themselves and their families safe? And what possibilities would they have had to be prepared?

Possibilities to prepare for a disaster could be, for example, listening to warnings issues by the authorities or informing oneself about emergency procedures, but also long-term strategies such as avoiding to work/live in or travel to certain areas that are prone to disasters.

If you were living in this area, how worried would you be about disasters like this?

This question is aiming to explore whether the fast or slow onset of a disaster plays a role in the way people perceive disaster risks.

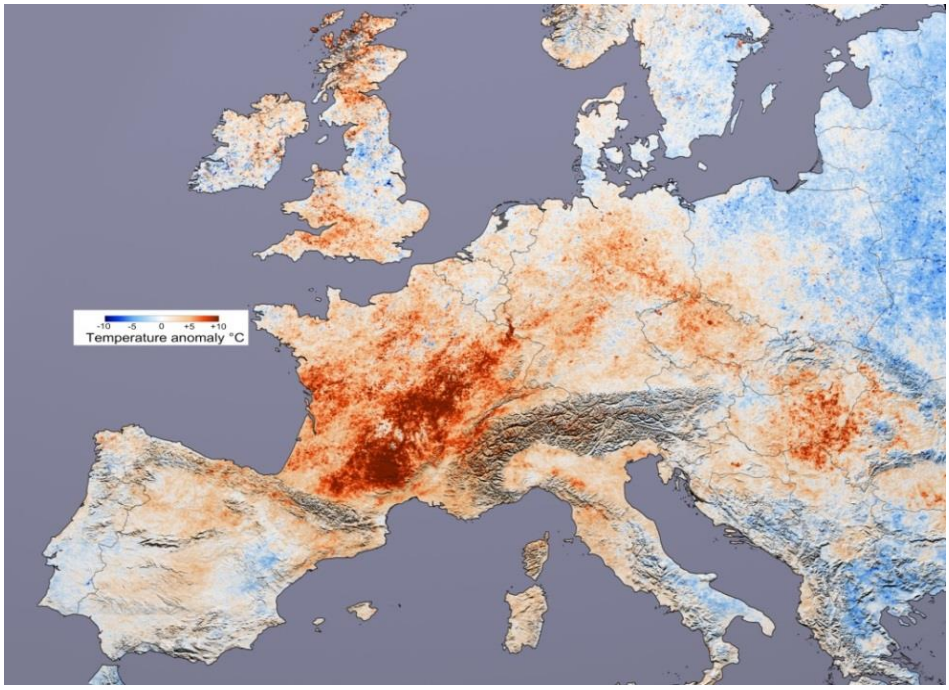
6.3.2 How long do you think it will take the people who live there to get back to a "normal" way of life after this disaster? How will it affect their lives? What, if anything, is going to change?

This question is aiming to explore how people feel about the short or long-term effects of a disaster, and how the experience of such disaster may, or may not, change their risk perception and/or behaviour. It should also explore potential positive effects (such as learning process, community resilience increase, people empowering, widening of volunteer actions, etc.).

6.3.3 What do you think are the causes for this disaster?

This question is aiming to explore whether people, actually, think in distinct categories such as natural and man-made disasters, and to what extent such categorisation affects their risk perception.

6.4 This picture goes a little bit further back in time, showing a map of the heatwave in Europe in 2003, with temperatures up to 10 degrees higher than average for the period between July 20th and August 20th. Overall this heatwave cost more than 70,000 lives, with France being hit hardest and almost 15,000 deaths.



Can you please tell me your opinions about the following questions:

6.4.1 Once people realise that something like this is happening, or going to happen, how much time do you think they would have to take action to keep themselves and their families safe? And what possibilities would they have had to be prepared?

Possibilities to prepare for a disaster could be, for example, listening to warnings issues by the authorities or informing oneself about emergency procedures, but also long-term strategies such as avoiding to work/live in or travel to certain areas that are prone to disasters.

If you were living in this area, how worried would you be about disasters like this?

This question is aiming to explore whether the fast or slow onset of a disaster plays a role in the way people perceive disaster risks.

Additionally, it should be explored to what extent the "visibility" or "invisibility" of a disaster shapes people's risk perceptions.

6.4.2 How long do you think it will take the people who live there to get back to a "normal" way of life after this disaster? How will it affect their lives? What, if anything, is going to change?

This question is aiming to explore how people feel about the short or long-term effects of a disaster, and how the experience of such disaster may, or may not, change their risk perception and/or behaviour. It should also explore potential positive effects (such as learning process, community resilience increase, people empowering, widening of volunteer actions, etc.).

6.4.3 What do you think are the causes for this disaster?

This question is aiming to explore whether people, actually, think in distinct categories such as natural and man-made disasters, and to what extent such categorisation affects their risk perception.

6.5 And now one final picture: It shows the aftermath of the disaster at the Fukushima Nuclear Power Plant in March 2011. Following an earthquake, a tsunami caused equipment failures which, in turn, caused a loss-of-coolant accident, resulting in nuclear meltdowns and the release of radioactive material.

Can you please tell me what you think in this case:

Note: These are the same questions as for the pictures in 11.2 and 11.3.

6.5.1 Once people realise that something like this is happening, or going to happen, how much time do you think they would have to take action to keep themselves and their families safe? And what possibilities would they have had to be prepared?

Possibilities to prepare for a disaster could be, for example, listening to warnings issues by the authorities or informing oneself about emergency procedures, but also long-term strategies such as avoiding to work/live in or travel to certain areas that are prone to disasters.

If you were living in this area, how worried would you be about disasters like this?

	This question is aiming to explore whether the fast or slow onset of a disaster plays a role in the way people perceive disaster risks. 6.5.2 How long do you think it will take the people who live there to get back to a "normal" way of life after this disaster? How will it affect their lives? What, if anything, is going to change? *This question is aiming to explore how people feel about the short or long-term effects of a disaster, and how the experience of such disaster may, or may not, change their risk perception and/or behaviour.* 6.5.3 What do you think are the causes for this disaster? *This question is aiming to explore whether people, actually, think in distinct categories such as natural and man-made disasters, and to what extent such categorisation affects their risk perception.*	**3h 20min**
60 min.	**Lunch break**	**4h 20min**
20 min.	**7. Group discussion topic 2: The role of citizens in different disaster phases** 7.1 Welcome back! Let us now move to a couple of questions that affect you personally: If you think there is a risk that a disaster may happen in your area, what do you think you can do to prepare - Yourself and your family, - for people who live in your neighbourhood? 7.2 If a disaster does happen in your area, what do you think you can do? 7.3 After a disaster has happened and, slowly, things are getting back to normal, what do you think you can do during this period? *The intention of this set of questions is to explore how citizens see their own role and their own possibilities to become active before, during and after disasters. If they have difficulties to imagine any situations, they may be given as examples different types of disasters, e.g. "Imagine there is serious flooding/an earthquake/a gas explosion in your area". However, it should first be explored with which examples participants may come up by themselves, which will give some indication about what types of disasters are, actually, on top of their mind.*	**4h 40min**
25 min.	**8. Group discussion topic 3: The role of cultural groups and cultural factors in disaster preparedness, relief and recovery** 8.1 Who do you think are the people, or groups of people, who are most affected by disasters? Why do you think they are more affected than others? *Whilst this question is aiming to explore the influence of cultural aspects, it is important NOT to use the word "culture" immediately, as this may trigger stereotyping (e.g. age, gender) or reducing the definition of culture to ethnicity or religious groups.* ***PLEASE STEER THE DISCUSSION AWAY FROM THE OBVIOUS "CHILDREN, OLD PEOPLE, DISABLED" GROUPS that are likely to be mentioned. In such case – for example if age is given as a stereotypical "cultural factor" – you could ask: "Do you mean all elderly people? Or what differences are there?"*** *To probe further, also some of the following examples could be given:* *- Different livelihoods* *- Different educational backgrounds*	

	- Different levels of local knowledge (and local risks), for example due to migration *- Different levels of health literacy (e.g. behaviour during heatwaves)* *- Gender roles (for example women having less access to education)* *- Age-related aspects (for example elderly people living alone under precarious conditions).* 8.2 What do you think are the specific needs of these people, or groups, - in preparing for a possible disaster - during a disaster - after a disaster getting back to "normal" life? 8.3 And who do you think are the people, or groups of people, who can give most help before, during and after disasters? Why? 8.4 If you think of the area where you live, what do you believe are the strengths of your community in case a disaster strikes? And what do you believe are the weaknesses? 8.5 When you think of the strengths of your community you just described, how do you think these strengths could be made use of in cooperation with the authorities (local authorities, emergency services, etc.) - during the preparation for a disaster - during a disaster - when recovering from a disaster? "With this last topic our group discussion has come to an end. Thank you very much for participating and for sharing your opinions and thoughts. We will now have a coffee break and then return to the main room, where there will be a final presentation which is summarising the results from today."	**5h 5min.**
15 min.	**Coffee break** (and guiding participants back to the main meeting room)	**5h 20min.**
10 min.	**9. Question set IV:** "Welcome back from what we think were some very interesting discussions. To summarise the opinions you expressed – particularly regarding the different types of disasters you identified – I would like to quickly show you again these pictures and ask: *Show the same pictures as in Group discussion topic 1, and ask question 14.1 separately for each picture / assembly of pictures:* 9.1 What do you think is the main cause for this disaster? *(1=Nature, 2=Human activity, 3=both, 4=I'm not sure)* 9.2 How much do you agree, or disagree, with the following statements: 9.2.1 "I think that there is a high risk of a natural disaster happening in my area in the next 3 years." *(1=I completely disagree, 2=I disagree, 3=I neither disagree nor agree, 4=I agree, 5=I completely agree, 0=I'm not sure)* 9.2.2 "I think that there is a high risk of a man-made disaster happening in my area in the next 3 years." *(1=I completely disagree, 2=I disagree, 3=I neither disagree nor agree, 4=I agree, 5=I completely agree, 0=I'm not sure)*	**5h 30min**
20 min.	**10. Final presentation: Overview of real-time results from participants' responses via the audience response system**	**5h 50min**

	During the breaks and the group discussions, the participants' responses will undergo a quick analysis and be collated in a presentation which visualises the results via graphs and in short descriptive statements.	
10 min.	**11. Conclusion**	**6h**

Appendix A-2

Time	Detailed Schedule & Content – Citizen Summits 3&4	Total running
[60 min.]	0. Participant registration a. Collecting consent forms b. Handing out voting keypads	
15 min.	**Welcome; introduction / presentation CARISMAND project**	15 min.
10 min.	**Presentation: Organisation & logistics** Time schedule; breaks; refreshments Breakout rooms/locations Instructions how to use the voting keypads Test questions[34] *These questions serve the purpose of live testing whether the ppvote system (central unit) is communicating properly with the distributed keypads (strength of radio signal), and to ensure that the participants know how to use their keypads. However, the questions' content also refers to the 2nd Stakeholder Assembly where several practitioners suggested that the perceived "value" of disaster management-related professions, such as police or firefighter, would be represented in a change of children's dream jobs.* Q1 What was your dream job when you were a child? *(1=actor/musician/dancer, 2=astronaut/pilot, 3=doctor/nurse, 4=engineer, 5=firefighter, 6=lawyer, 7=police officer, 8=professional athlete, 9=scientist, 10=teacher, 0=Other/I don't remember)* Q2 Think of a 7 or 8 year old child you know well, which may be your own or, for example, the child of a friend or family member. What does that child want to be when they grow up? *(1=actor/musician/dancer, 2=astronaut/pilot, 3=doctor/nurse, 4=engineer, 5=firefighter, 6=lawyer, 7=police officer, 8=professional athlete, 9=scientist, 10=teacher, 0=Other/I don't know)*	25 min.
15 min.[35]	**Question Set I: Demographics & disaster experience** *The first 5 questions in this set (Q1 – Q5) are taken directly from the recruitment questionnaire and provide some demographic and other basic participant information. Q6 asks for citizens' for citizens' disaster risk perception, whereas Q7 asks for citizens' emotions (worry/concern)*[36]. Q3 Gender *(1=female, 2=male, 3=choose not to say)* Q4 Age *(numeric)*	

[34] Please note that the question numbers in this schedule are not identical with those in section 3 (Quantitative Analysis) of this document, because in the schedule the numbering serves the structuring of the overall event.

[35] The time for this (as well as for each following) set of questions is generously planned, allowing for app. 2 min. per question. The presenter will read each question and all answer options out loud to the audience whilst they are shown on the presentation screen.

[36] This type of question is going to be posed to the audience a second time, i.e. at the end of question set II (Information & disaster preparedness). In order to achieve adequate internal consistency but without using exactly the same wording, these questions are based on the 5-item measure developed by Kellens et al (2011) with a Cronbach's Alpha of 0.80 for the perception of flood risk, adapted to disasters in general (see Kellens, W., Zaalberg, R., Neutens, T., Vanneuville, W., & De Maeyer, P. (2011). An analysis of the public perception of flood risk on the Belgian coast. Risk analysis, 31 (7), 1055-1068).

	Q5 Have you, or a close friend or family member, ever experienced a disaster? *(1=yes, 2= no, 6=I'm not sure)* Q6 Do you feel you are living in an area that is specifically prone to disasters? *(1=yes, 2=no, 6=I'm not sure)* Q7 Do you know of any other people in your area where you live who you think are particularly vulnerable or exposed to disasters? *(1=yes, 2=no, 6=I'm not sure)* Q8 How high, or low, do you think is the risk that a disaster occurs in the area where you live? *(1=very low, 2=low, 3=neither low nor high, 4=high, 5=very high, 6=I'm not sure)* Q9 How much do you agree, or disagree, with the following statement: "I am worried about disasters in the area where I live." *(1=I totally disagree, 2=I disagree, 3=I neither disagree nor agree, 4=I agree, 5=I totally agree, 6=I'm not sure)*	**40 min.**
15 min.	**Question Set II: Information and disaster preparedness** *This set of questions builds upon the design and results from the first two Citizen Summits in 2016, as well as results from the Work Package 4 literature review which points particularly at recent research findings regarding the correlations between perceived disaster preparedness and actual preparedness*[37]*. In detail, Q4.1 introduces the topic of disaster preparedness through asking for awareness of disaster-related behaviours; Q4.2, Q4.5 and Q4.6 measure citizens' disaster preparedness intentions*[38]*, with Q4.3 and Q4.4 operationalising the results from Q4.2 for guidance to disaster managers (the need of training activities rather than the mere provision of information was specifically pointed out by participants in the 2nd Stakeholder Assembly). Q4.7 is the second measure of citizens' feelings as outlined in question set I.* Q10 How informed do you feel by the authorities (for example Civil Protection, local police, emergency services) of what you have to do in case of a disaster? *(1=not informed at all, 2=not informed, 3=reasonably informed, 4=informed, 5=very informed, 6=I'm not sure)* Q11 How much are you interested in information about disaster preparedness? *(1=not interested at all, 2=interested very little, 3=interested a little, 4=quite interested, 5=very interested, 6=I'm not sure)* Q12 How often would you like to receive information about how to prepare yourself and your family/friends for a disaster? *(1=never, 2=only when there is an increased disaster risk, 3=once per year, 4=once every 6 months, 5=at least once every 3 months, 6=I'm not sure)* Q13 How often would you like to participate in training activities, for example emergency drills or workshops, that will help improving your and your family's/friends' safety in case of a disaster?	

[37] Joffe, H., Perez-Fuentes, G., Potts, H.W.W. & Rossetto, T. (2016) How to increase earthquake and home fire preparedness: the fix-it intervention. In: Natural Hazards, 84: 1943. doi:10.1007/s11069-016-2528-1.

[38] Questions are based on the 3-item measure (Cronbach's Alpha 0.86) developed by Terpstra (2011) for flood preparedness intentions. (see Terpstra, T. (2011). Emotions, trust, and perceived risk: Affective and cognitive routes to flood preparedness behavior. Risk Analysis, 31 (10), 1658-1675).

	(1=never, 2=only when there is an increased disaster risk, 3=every 3-5 years, 4=every 1-2 years, 5=at least once per year, 6=I'm not sure) Q14 How prepared do you personally feel for a disaster in your area? *(1=not prepared at all, 2=not prepared, 3=neither prepared nor unprepared, 4=prepared, 5=well prepared, 6=I'm not sure)* Q15 To what extent do you intend to prepare for disasters? *(1=Not prepare at all, 2=Prepare very little, 3=Prepare a bit, 4=Prepare quite a lot, 5=Prepare a lot, 6=I'm not sure)* Q16 How much do you agree, or disagree, with the following statement: "When I think of disasters in my area, I feel concerned." *(1=I totally disagree, 2=I disagree, 3=I neither disagree nor agree, 4=I agree, 5=I totally agree, 6=I'm not sure)*	**55min.**
15 min.	**Presentation about personal preparedness measures for citizens in case of a disaster** *provided by disaster practitioner or moderator*	**1h 10min.**
15 min.	**Question Set III: Social media use in disasters** *This set of questions builds upon the results from the first two Citizen Summits in 2016, the 2nd Stakeholder Assembly as well as the Work Package 3 Deliverables which show the uptake of social media by citizens in disaster situations to gather information, but also the increasing usage of specifically designed "disaster apps". Q6.3 and Q6.4 intentionally differentiate between social media and mobile phone apps, because there is yet little research which explores the different possible functions expected, or desired, by citizens.* Q17 Do you use a mobile phone? *(1=yes, 2=no)* Q18 Do you use mobile phone apps? *(1=yes, 2=no, 3=I don't know)* In the case of a disaster, how likely are you to use a mobile phone app that is specifically made for disaster situations to: 18.1 receive alerts, warnings or emergency-related information from local authorities / emergency services. 18.2 submit information about disaster risks or disasters to local authorities / emergency services. 18.3 warn/inform other app users. *(1=very unlikely, 2=unlikely, 3=neither unlikely nor likely, 4=likely, 5=very likely, 0=I'm not sure)* Q19 Do you use the internet? *(1=yes, 2=no)* Do you use social media? *(1=yes, 2=no, 0=I'm not sure)* 19.1 In the case of a disaster, how likely are you to use social media to: 19.1.1 inform yourself about the disaster. 19.1.2 submit information about disaster risks or disasters to local authorities / emergency services. 19.1.3 warn/inform other social media users *(1=very unlikely, 2=unlikely, 3=neither unlikely nor likely, 4=likely, 5=very likely, 0=I'm not sure)*	**1h 25min.**
15 min.	**Presentation about the use of social media and mobile phone apps in disaster management** *presented by app designer or moderator*	**1h 40min.**
20 min.	**Question Set IV: Trust / Distrust** *These questions, generally, are based on the findings in the literature review of Work Package 4, and the results from the 2nd Stakeholder Assembly, outlining the important but often contradictory role of trust between citizens and disaster managers. Q8.1 to Q8.6 specifically seek to explore different levels of expectations towards, and trust in, different*	

	authorities/institutions[39]*; Q8.7 is based on this topic having been raised by practitioners during the 2nd Stakeholder Assembly (Discussion group session II). Q8.8 is another topic brought up during the 2nd Stakeholder Assembly (Discussion group session III) explores trust further, understanding it as a bi-directional relationship between citizens and disaster managers and intending to complement the research regarding citizen empowerment in Work Package 7.* When you think of the **Civil Protection**… Q20 How effective in providing help do you think they are in case of a disaster? *(1=not effective at all, 2=not effective, 3=neither ineffective nor effective, 4=effective, 5=very effective, 6=I'm not sure)* Q21 How trustworthy do you think they are? *(1=not trustworthy at all, 2= not trustworthy, 3=neither untrustworthy nor trustworthy, 4=trustworthy, 5=very trustworthy, 6=I'm not sure)* When you think of your **local Police**… Q22 How effective in providing help do you think they are in case of a disaster? *(1=not effective at all, 2=not effective, 3=neither ineffective nor effective, 4=effective, 5=very effective, 6=I'm not sure)* Q23 How trustworthy do you think they are? *(1=not trustworthy at all, 2= not trustworthy, 3=neither untrustworthy nor trustworthy, 4=trustworthy, 5=very trustworthy, 6=I'm not sure)* When you think of the **Medical Emergency Service**… Q24 How effective in providing help do you think they are in case of a disaster? *(1=not effective at all, 2=not effective, 3=neither ineffective nor effective, 4=effective, 5=very effective, 6=I'm not sure)* Q25 How trustworthy do you think they are? *(1=not trustworthy at all, 2= not trustworthy, 3=neither untrustworthy nor trustworthy, 4=trustworthy, 5=very trustworthy, 6=I'm not sure)* When you think of the **Fire Brigade**… Q26 How effective in providing help do you think they are in case of a disaster? *(1=not effective at all, 2=not effective, 3=neither ineffective nor effective, 4=effective, 5=very effective, 6=I'm not sure)* Q27 How trustworthy do you think they are? *(1=not trustworthy at all, 2= not trustworthy, 3=neither untrustworthy nor trustworthy, 4=trustworthy, 5=very trustworthy, 6=I'm not sure)* When you think of **Voluntary Aid Institutions**… Q28 How effective in providing help do you think they are in case of a disaster? *(1=not effective at all, 2=not effective, 3=neither ineffective nor effective, 4=effective, 5=very effective, 6=I'm not sure)* Q29 How trustworthy do you think they are? *(1=not trustworthy at all, 2= not trustworthy, 3=neither untrustworthy nor trustworthy, 4=trustworthy, 5=very trustworthy, 6=I'm not sure)* When you think of the **Media**… Q30 How effective in providing help do you think they are in case of a disaster? *(1=not effective at all, 2=not effective, 3=neither ineffective nor effective, 4=effective, 5=very effective, 6=I'm not sure)* Q31 How trustworthy do you think they are? *(1=not trustworthy at all, 2= not trustworthy, 3=neither untrustworthy nor trustworthy, 4=trustworthy, 5=very trustworthy, 6=I'm not sure)*	

[39] See Armaş, I., Crety, R. Z. & Ionescu, R. (2017) Self-efficacy, stress, and locus of control: the psychology of earthquake risk perception in Bucharest, Romania. In: International Journal of Disaster Risk Reduction (accepted manuscript, in press). The results of this study specifically point at different components of trust.

	Q32 Imagine there is a high risk that a disaster will occur in the area where you live. If you use social media, how much would you trust, or mistrust, messages from: 32.1 Local authorities 32.2 Private users of social media *(1=distrust a lot, 2=distrust, 3=neither distrust nor trust, 4=trust, 5=trust a lot, 6=I'm not sure, 7=I don't use social media)* Q33 How much do you believe that the local authorities/emergency services trust YOU, as a citizen, that… 33.1 you are appropriately prepared for a disaster? *(1=they distrust citizens a lot, 2=they distrust citizens, 3=they neither distrust nor trust citizens, 4=they trust citizens, 5=they trust citizens a lot, 6=I'm not sure)* 33.2 you are able to respond appropriately in case of a disaster? *(1=they distrust citizens a lot, 2=they distrust citizens, 3=they neither distrust nor trust citizens, 4=they trust citizens, 5=they trust citizens a lot, 6=I'm not sure)*	**2h**
60 min.	**Lunch break**	**3h**
10 min.	**12. Introduction of moderators and discussion group logistics** (and guiding participants to the different breakout rooms)	**3h 10min.**
10 min.	**13. Discussion group briefing** *Welcome the participants and assign them a seat. This is mandatory, in order to obtain their informed consent and to ensure that they understand what they have agreed to do. Explain to them that the audio recording of the discussion is necessary so as not to miss any of the comments given during the discussions. Start recording the meeting and inform the participants that the recording has begun.* "Welcome and thank you for agreeing to participate in this discussion group. Your contribution is highly valued. My name is _____ and I will be chairing this group discussion. Our session will take about 90-120 minutes. Since we will be audio recording the discussion, I would kindly ask you to speak in a clear voice and one at a time; your opinions, experiences and suggestions are very important to this project, and we do not want to miss any of your comments." *At this stage, do not to provide any additional details on the content of the discussion group in order to avoid influencing and biasing the discussion! However, in case a participant asks, you can give them the general explanation that* "these discussions serve to understand how citizens feel and what they think about disasters". "As stated on the signed consent form, everything that will be recorded during this session will be used only for the purposes of this study and will be kept confidential, i.e. the recorded comments might be used in scientific publications and reports relating to this study, but only as anonymous quotes. I want you to make sure that you are comfortable enough to share your opinions with all the participants in the group. In order to facilitate this, I would like to ask everyone present to follow these ground rules: • We are interested in the opinion of each individual and we would therefore like to hear from all the people in the group.	

	• There are no wrong or right answers. There are only different opinions. Consequently, we'd like you to respect each other's opinions. • It is important for us that only one person speaks at a time. Each opinion is important and I would kindly request that you don't speak when others are speaking, otherwise it will be difficult for us to capture all of your opinions. • I would also kindly request that you silence your mobile phones and thus provide for an uninterrupted discussion. Do you have any comments or other suggestions for these ground rules? Do you have any other important general questions before we start?" […] "So, let us start with each member of the group briefly introducing themselves. Let us go around the table. Tell us, please, your name or, if you prefer, your first name or a nickname, and a few basic things about yourself, for example your age, your occupation etc. Let me start by introducing myself…"	**3h 20min.**
10 min.	**14. Discussion topic: "Warm-up"** "I would like to begin our discussion with a short "warm-up": I will read out a word and I would like you to say the first couple of things that spring to your mind when you hear the word. Let's try an example first: What is the first thing that comes to mind if I say the word "fire"? Preferably, try to think about single words or short phrases, and try to avoid lengthy descriptions. " *Read out (**one at a time**, and encourage each of the participants to give one or two words only they associate spontaneously with the respective term):* - "Responsibility" - "Credibility" - "Trust" - "Faith"	**3h 30min.**
10 min.	**15. Discussion topic: Experience of disasters** "What disasters that have occurred in the past in the area where you live can you spontaneously think of?" […] *This question does not only serve as an additional warm-up, but it should also probe what **actual disaster experience** (or memories thereof) the different participants have. Here, it is ok if participants also talk about e.g. their parents' or grandparents' memories they may have been told when they were children, as we are also interested in what **collective memories of disasters** are prevalent in the respective region.*	**3h 40min.**
25 min.	**16. Discussion topic: Trust in authorities** "We have asked you a couple of questions this morning regarding your trust in different authorities and institutions, for example Civil Protection, local police, fire brigade, medical emergency services, voluntary aid institutions etc. Now I would like to discuss this with you a bit more: Can you tell me about your personal experiences of a disaster or an emergency situation where you felt trust, or distrust, in the different authorities that were on site?" […]	

	"What did they do to earn your trust, or distrust?" […] *Please try to make the participants talk about their **actual** experiences rather than speculating about hypothetical situations. Those who claim that they have no such experience at all should be encouraged to talk about other, smaller-scale emergency situations, e.g. a car accident or a workplace accident. The aim of this question is not only to find out which different authorities or institutions citizens trust (or distrust) in disaster situations, but also what are the reasons for these feelings. Such reasons may be, e.g., previous experience with the respective authority, specific symbols (e.g. uniform, red cross), or specific behaviour that raises trust or distrust. Please let the participants speak freely and develop their own ideas; only use the abovementioned examples for probing in case they can't think themselves of any reasons why they felt trust or distrust.* "Do you think other people in your area felt the same in that situation you just described? Why / why not? What different behaviours did you observe in different people, or different groups if people?" […] *The intention of this question is to find out **whether different cultural groups trust, or distrust, differently in disaster situations**. Whilst a certain level of speculation is in this case unavoidable, please probe the participants' opinions by asking **what observed behaviours** in others make them think so.*	**4h 5 min.**
25 min.	**17. Discussion topic: Trust in non-professional leaders** "What other persons did you encounter in a disaster or emergency situation who were NOT professional disaster managers or emergency services but took up responsibility spontaneously. For example, people who helped in organising evacuation, rescuing victims, or assisting in the communication between authorities and citizens or between different groups?" […] "How did you feel about these persons? And why?" […] *Here, we are trying to find out **who are the non-professional ("natural)" leaders** citizens trust in a disaster situation, and **what makes them trust such persons**. Please let the participants elaborate their own ideas and experiences (e.g. pre-existing relationships, previous experiences in everyday situations, assumed organisational skills, assumed "natural" or professional authority in other areas). Only if participants have difficulties to think of any such person, you may give them examples, such as local council representatives, the parish priest, the imam, a local doctor, the pharmacist, a teacher, a local business owner, volunteers of local sports clubs or other associations etc.* "Do you think other people felt the same in that situation you just described? Why / why not? What different behaviours did you observe in different people, or different groups of people?" […] *As in the previous set of questions, the intention, here, is to find out whether different cultural groups trust, or distrust, differently in disaster situations. In this question we are trying to **identify who are the individual "cultural leaders" people are trusting**. Again, whilst a certain level of speculation is in*	**4h**

	*this case unavoidable, please probe the participants' opinions by asking what **observed behaviours** in others make them think so.*	**30min.**
15 min.	**18. Discussion topic: Trust in social media** "This morning you were also asked about your trust in social media messages from different sources, in particular information provided via social media from authorities, journalists, volunteer associations or other, private social media users. Can you tell me a bit more about this? Why do you trust, or distrust, some more than others?" […] *This discussion topic is building upon the quantitative question asked in the morning. Please encourage the participants to find specific reasons why they trust, or distrust, one entity more than another, and ask them to describe specific situations where they trusted (or distrusted) social media messages.*	**4h 45min.**
15 min.	**19. Discussion topic: Disaster preparedness measures in practice** "What information do you have available, or have you ever received, about disaster preparedness measures and about what to do in case of a disaster? Can you tell me a bit what type of information this is, or was, and how useful you found it?" […] *This discussion topic is also building upon a quantitative question asked in the morning. Possible types of information could be, e.g., brochures, specific websites, posters/awareness campaigns by local authorities. Please probe not only for general perceived usefulness, but also for specific aspects, e.g. how easy the information was to understand (language use / technical terms etc.), and how appropriate they felt it was for different cultural groups.* "Earlier today you have also heard a bit about different possible measures to prepare yourself, and your family or your friends, for the case of a disaster. Imagine you have the opportunity to a. Participate in a free emergency preparedness and response course which runs over several weeks at hours when you have time, for example 2 hours per week over a period of 6 weeks. b. Participate in a large-scale disaster scenario set up in your area over a day on a weekend, for example an explosion in a metro station. c. Download a mobile phone app that is specifically designed to provide information about disasters or threats in the area where you live; you will be asked to test this app for a period of 3 months and fill out an anonymous feedback questionnaire after that period. Would you take up such an opportunity, and why, or why not?" […] *For each of these three options you will have cue cards. Show these cue cards – ONE AT A TIME – and let the participants discuss freely. Please probe for the specific conditions under which they would be most interested to participate in any activity.*	**5h**
20 min.	**Coffee break** (and guiding participants back to the main meeting room)	**5h 20min.**
30 min.	**20. Final presentation: Overview of real-time results from participants' responses via the audience response system**	**5h 50min.**

	During the breaks and the group discussions, the participants' responses will undergo a quick analysis and be collated in a presentation which visualises the results via graphs and in short descriptive statements. Additionally, the final presentation will provide some information about the results from the first two Citizen Summits.	
10 min.	**21. Conclusion**	**6h**

Appendix A-3

Time	Detailed Schedule & Content – Citizen Summits 5&6	Total running
[60 min.]	Participant registration / Collecting consent forms / Handing out voting keypads	
15 min.	**Welcome & logistics** **Intro presentation: The CARISMAND project**	15 min.
15 min.[40]	**Question Set I: Demographics & disaster experience** *The first 5 questions in this set (Q1 – Q5) are taken directly from the recruitment questionnaire and provide some demographic and other basic participant information. Q6 asks for citizens' disaster risk perception, whereas Q7 asks for citizens' emotions (worry/concern)*[41]*. Q8 explores the likeliness of participants using a website where they can find recommendations how to improve their disaster preparedness. This question is, intentionally, asked before the CARISMAND Toolkit will be introduced; a similar question will be asked in the very end of this event to investigate the likeliness of citizens specifically using the CARISMAND Toolkit.* Q1/Q2 Test questions Q3 Gender *(1=female, 2=male, 3=choose not to say)* Q4 Age *(numeric)* Q5 Have you, or a close friend or family member, ever experienced a disaster? *(1=yes, 2= no, 3=I'm not sure)* Q6 Do you feel you are living in an area that is specifically prone to disasters? *(1=yes, 2=no, 3=I'm not sure)* Q7 Do you know of any other people in your area where you live who you think are particularly vulnerable or exposed to disasters? *(1=yes, 2=no, 3=I'm not sure)* Q8 How high, or low, do you think is the risk that a disaster occurs in the area where you live? *(1=very low, 2=low, 3=neither low nor high, 4=high, 5=very high, 6=I'm not sure)* Q9 How much do you agree, or disagree, with the following statement: "I am worried about disasters in the area where I live." *(1=I totally disagree, 2=I disagree, 3=I neither disagree nor agree, 4=I agree, 5=I totally agree, 6=I'm not sure)*	

[40] The time for this (as well as for each following) set of questions is generously planned, allowing per question for app. 1 min. (for yes-no questions) and 2 min. (for Likert scale questions). The presenter will read each question and all answer options out loud to the audience whilst they are shown on the presentation screen.

[41] This type of question is going to be posed to the audience a second time, i.e. at the end of question set II (Information & disaster preparedness). In order to achieve adequate internal consistency but without using exactly the same wording, these questions are based on the 5-item measure developed by Kellens et al (2011) with a Cronbach's Alpha of 0.80 for the perception of flood risk, adapted to disasters in general (see Kellens, W., Zaalberg, R., Neutens, T., Vanneuville, W., & De Maeyer, P. (2011). An analysis of the public perception of flood risk on the Belgian coast. Risk analysis, 31 (7), 1055-1068).

	Q10 How likely are you to use a website where you can find information about how you, your family and friends can better prepare for a disaster? *(1=very unlikely, 2=unlikely, 3=neither unlikely nor likely, 4 likely, 5=very likely, 6=I'm not sure)*	**30 min.**
15 min.	**Presentation:** **The CARISMAND Toolkit**	**45 min.**
15 min.	**Question Set II: Disaster preparedness** *This set of questions builds upon the design of and results from Citizen Summits 3 and 4 in 2017. In detail, Q9 introduces the topic of disaster preparedness through asking for awareness of disaster-related behaviours; Q10, Q13 and Q14 measure citizens' disaster preparedness intentions[42], with Q11 and Q12 operationalising the results from Q10 for guidance to disaster managers (the need of training activities rather than the mere provision of information was specifically pointed out by participants in the 2nd and 3rd Stakeholder Assembly). Additionally, the results of Citizen Summit 4 (Germany) demonstrated that measuring merely citizens' abstract preparedness intentions may not reveal the full picture, as there appear to be cultural differences in the perception of what "prepare little" or "prepare a lot" actually means. Q15 is the second measure of citizens' feelings as outlined in question set I.* Q11 How informed do you feel by the authorities (for example Civil Protection, local police, emergency services) of what you have to do in case of a disaster? *(1=not informed at all, 2=not informed, 3=reasonably informed, 4=informed, 5=very informed, 6=I'm not sure)* Q12 How much are you interested in information about disaster preparedness? *(1=not interested at all, 2=interested very little, 3=interested a little, 4=quite interested, 5=very interested, 6=I'm not sure)* Q13 How often would you like to receive information about how to prepare yourself and your family/friends for a disaster? *(1=never, 2=only when there is an increased disaster risk, 3=once per year, 4=once every 6 months, 5=at least once every 3 months, 6=I'm not sure)* Q14 How often would you like to participate in training activities, for example emergency drills or workshops, that will help improving your and your family's/friends' safety in case of a disaster? *(1=never, 2=only when there is an increased disaster risk, 3=every 3-5 years, 4=every 1-2 years, 5=at least once per year, 6=I'm not sure)* Q15 How well do you personally feel prepared for a disaster in your area? *(1=not prepared at all, 2=not prepared, 3=neither prepared nor unprepared, 4=prepared, 5=well prepared, 6=I'm not sure)*	

[42] Questions are based on the 3-item measure (Cronbach's Alpha 0.86) developed by Terpstra (2011) for flood preparedness intentions. (see Terpstra, T. (2011). Emotions, trust, and perceived risk: Affective and cognitive routes to flood preparedness behavior. Risk Analysis, 31 (10), 1658-1675).

	Q16 To what extent do you intend to prepare for disasters? *(1=Not prepare at all, 2=Prepare very little, 3=Prepare a bit, 4=Prepare quite a lot, 5=Prepare a lot, 6=I'm not sure)* Q17 How much do you agree, or disagree, with the following statement: "When I think of disasters in my area, I feel concerned." *(1=I totally disagree, 2=I disagree, 3=I neither disagree nor agree, 4=I agree, 5=I totally agree, 6=I'm not sure)*	**60 min.**
30 min.	**Presentation of Toolkit recommendation:** *"Develop a personal "culture" of preparedness"*	**1h 30 min.**
15 min.	**Presentation & video:** Disaster scenario exercise with citizens in Malta	**1h 45 min.**
30 min.	**Presentation of Toolkit recommendation:** *"Take part in disaster preparedness and response activities"*	**2h 15 min.**
15 min.	**Question Set III: Social media use in disasters** *This set of questions builds upon the results from Citizen Summits 3 and 4 in 2017, the 2nd Stakeholder Assembly as well as the Work Package 3 Deliverables which show the uptake of social media by citizens in disaster situations to gather information, but also the increasing usage of specifically designed "disaster apps". Q18 and Q21 intentionally differentiate between social media and mobile phone apps, because there is yet little research which explores the different possible functions expected, or desired, by citizens.* Q18 Do you use a mobile phone? *(1=yes, 2=no)* Q19 Do you use mobile phone apps? *(1=yes, 2=no, 3=I don't know)* Q20 In the case of a disaster, how likely are you to use a mobile phone app that is specifically made for disaster situations to: 20.1 receive alerts, warnings or emergency-related information from local authorities / emergency services. 20.2 submit information about disaster risks or disasters to local authorities / emergency services. 20.3 warn/inform other app users. *(1=very unlikely, 2=unlikely, 3=neither unlikely nor likely, 4=likely, 5=very likely, 6=I'm not sure)* Q21 Do you use the internet? *(1=yes, 2=no)* Q22 Do you use social media? *(1=yes, 2=no, 3=I'm not sure)* In the case of a disaster, how likely are you to use social media to: 22.1 inform yourself about the disaster. 22.2 submit information about disaster risks or disasters to local authorities / emergency services. 22.3 warn/inform other social media users *(1=very unlikely, 2=unlikely, 3=neither unlikely nor likely, 4=likely, 5=very likely, 6=I'm not sure)*	**2h 30 min.**
90 min.	**Lunch break**	**4h**
120 min.	**Discussion group session**	**6h**

30 min.	**Coffee break** (and return to general assembly room)	**6h 30 min.**
20 min.	**Final presentation:** **Overview of real-time results from participants' responses via the audience response system** *During the breaks and the group discussions, the participants' responses will undergo a quick analysis and be collated in a presentation which visualises the results via graphs and in short descriptive statements. Additionally, the final presentation will provide some information about the results from the previous four Citizen Summits.*	**6h 20 min.**
2 min.	**Q23 Final question:** How likely are you to use the CARISMAND Toolkit website to find information how you, your family and friends can better prepare for disasters? *(1=very unlikely, 2=unlikely, 3=neither unlikely nor likely, 4 likely, 5=very likely, 6=I'm not sure)*	**6h 22 min.**
8 min.	**Final conclusions**	**6h 30min.**

Objectives	**Citizen Summits 5&6** **Discussion guideline - Briefing**
Welcome and introduction *[about 10 min.]* - *Welcome participants* - *Obtain signed consent forms (if required)* - *Start recording the meeting* - *Thanking participants* - *Introduction of the moderator* - *Duration* - *Confidentiality* - *Ground rules for the discussion* - *Brief introduction of the participants*	*Welcome the participants, assign them a seat, and provide them with name cards.* *Participants should have signed the consent form on registration. However, please check and collect any outstanding forms if required. Explain to them that an audio recording of the discussion is necessary so as not to miss any of the comments given during the discussions. Start recording the meeting and inform the participants that the recording has begun.* Welcome and thank you for agreeing to participate in this working group. My name is _____ and I will be moderating this group discussion. Our session will last about one hour and fifteen minutes. Since we will be audio recording the discussion, I would kindly ask you to speak in a clear voice. Your opinions, experiences and suggestions are very important to this project, and we do not want to miss any of your comments. " **At this stage, do not to provide any additional details on the content of the working group in order to avoid influencing and biasing the discussion.** As explained and stated on the signed consent form, everything that will be recorded during this session will be kept confidential, i.e. the recorded comments might be used in scientific publications and reports, but only as anonymous quotes. I want you to make sure that you are comfortable enough to share your opinions with all the participants in the group. In order to facilitate this, I would like to ask everyone present to follow these ground rules: • We are interested in the opinion of each individual and we would therefore like to hear from all the people in the group.

	• There are no wrong or right answers. There are only different opinions. Consequently, we request that you mutually respect each other's opinions. • It is important for us that only one person speaks at a time. Each opinion is important and I would kindly request that you don't speak when others are speaking, otherwise it will be difficult for us to capture all of your opinions. • I would also kindly request that you silence your mobile phones and thus provide for an uninterrupted discussion. Do you have any comments or other suggestions for these ground rules? Do you have any other important general questions before we start?" […] "So, let us start with each member of the group briefly introducing themselves. Let us go around the table. Tell us, please, your name, or nickname if you prefer, and a few basic things about yourself, such as your approximate age, occupation, where you come from, etc. Let me start by introducing myself…" *Running total: 10 min.*
	Warm-up exercise
0.Word association exercise *[about 5 min.]* ***Question aims:*** - *Warm-up*	I would like to begin our discussion with a short warm-up. I will read out a word and I would like you to say the first word or two that spring to your mind when you hear it. Let's try an example first: What is the first thing that comes to mind if I say the word "fire"? Preferably, try to think about single words or short phrases. **Read Out (one at a time):** - Responsibility - Trust - Safety **This is a warm up exercise. Do not discuss.** *Running total: 15 min.*

	Discussion Topics
1. Spontaneous reactions [about 10 min] ***Question aims:*** - *Determine what:* - *Resonated i.e. is highly relatable to their personal experience* - *Surprised – and why, i.e. is it because they feel it is irrelevant, or*	During this first part of the discussion, I'd like to talk about how you, as "normal" citizens, can improve your and your family's and friends' disaster preparedness by <u>developing a personal "culture of preparedness".</u> Firstly, I'd like to talk about the presentation you heard this morning. Was there anything in the presentation that struck you? Maybe you felt that something resonated strongly with your personal expectations, your personal experience or something that you were surprised by? **Probe and explore fully** *In this set of questions, the participants should be encouraged to elaborate the underlying reasons for their reactions.*

they would find it difficult to do etc.	• *Resonance will give us 'easy wins' and effective comms messages* • *Anything which provokes surprise may be due to either a lack of relevance, or a lack of conviction that the approach is feasible. If the latter, Why?* *Running total: 25 min.*
2. Overall reactions to the recommendations [about 10 min] ***Question aims:*** - *Determine that recommendations are clear and make sense* - *Which will make the most noticeable difference and why*	Now, I'd like to understand your reactions to the recommendations we're proposing. **Share SHOWCARD 1, reading out further detail from the Recommendations document to ensure full recall and understanding.** Looking at this, is there anything that does not make sense? **Where unclear determine why e.g. is it the wording or that participants do not understand the reasons behind the recommendation, etc.** Looking at these recommendations, is there any one (or more) that you feel will make more of a difference? Why? **Identify the top recommendation participants feel will have most impact and explore why.** *After a refreshing recall of the full set of recommendations, this will help confirm resonance or otherwise and determine a ranking in terms of perceived likely impact.* *Running total: 35 min.*
3. Detailed reactions to the individual recommendations [about 25 min] ***Question aims:*** - *Validate the recommendations – are they useful?* - *Identify ease of putting them into practice; are there any barriers?* - *Suggestions for improvement*	Now, I'd like to go through each of these individual recommendations and get your reactions to each one. For each recommendation ask: - How useful do you think is this recommendation to you and your family and/or friends? - Can you see it being put into practice? Would there be any difficulties around this? Which? **Explore barriers and determine what can be done to address these.** - What will be the benefits of doing this? **Probe for tangible differences to outcomes as identified by participants. Encourage participants to give examples from their own experience where doing this would have made a difference.** - Can it be improved? How and why? *This section should explore reactions to each recommendation in depth determining drivers, barriers, benefits and suggestions for improvement. These questions should enable us to validate the recommendations, or otherwise.* **If any suggestions for other recommendations are spontaneously mentioned over the course of the discussion, discuss these with the rest of the group to determine relevance and validate accordingly.**

	Running total: 60 min.
[5-10 min]	**Short break** *Running total: 70 min.*
4. Spontaneous reactions [about 10 min] ***Question aims:*** - *Determine what:* - *Resonated i.e. is highly relatable to their personal experience* - *Surprised – and why, i.e. is it because they feel it is irrelevant, or they would find it difficult to do etc.*	Now, in this second part of the discussion, I'd like to talk about how you, and citizens in general, <u>can get engaged and take part in disaster preparedness and response activities.</u> Firstly, I'd like to talk about the other presentation you heard this morning. Was there anything in that presentation that struck you? Maybe you felt that something resonated strongly with your personal expectations, your personal experience or something that you were surprised by? **Probe and explore fully** *In this set of questions, the participants should be encouraged to elaborate the underlying reasons for their reactions.* • *<u>Resonance</u> will give us 'easy wins' and effective comms messages* • *Anything which provokes <u>surprise</u> may be due to either a lack of relevance, or a lack of conviction that the approach is feasible. If the latter, Why?* *Running total: 80 min.*
5. Overall reactions to the recommendations [about 10 min] ***Question aims:*** - *Determine that recommendations are clear and make sense* - *Which will make the most noticeable difference and why*	Now, I'd like to understand your reactions to the recommendations we're proposing. **Share SHOWCARD 2, reading out further detail from the Recommendations document to ensure full recall and understanding.** Looking at this, is there anything that does not make sense? **Where unclear determine why e.g. is it the wording or that participants do not understand the reasons behind the recommendation, etc.** Looking at these recommendations, is there any one (or more) that you feel will make more of a difference? Why? **Identify the top recommendation participants feel will have most impact and explore why.** *After a refreshing recall of the full set of recommendations, this will help confirm resonance or otherwise and determine a ranking in terms of perceived likely impact.* *Running total: 90 min.*
6. Detailed reactions to the individual recommendations [about 25 min] ***Question aims:***	Now, I'd like to go through each of these individual recommendations and get your reactions to each one. For each recommendation ask: - How useful do you think is this recommendation to you and your family and/or friends?

- *Validate the recommendations – are they useful?* - *Identify ease of putting them into practice; are there any barriers?* - *Suggestions for improvement*	- Can you see it being put into practice? Would there be any difficulties around this? Which? **Explore barriers and determine what can be done to address these.** - What will be the benefits of doing this? **Probe for tangible differences to outcomes as identified by participants. Encourage participants to give examples from their own experience where doing this would have made a difference.** - Can it be improved? How and why? *This section should explore reactions to each recommendation in depth determining drivers, barriers, benefits and suggestions for improvement. These questions should enable us to validate the recommendations, or otherwise.* **If any suggestions for other recommendations are spontaneously mentioned over the course of the discussion, discuss these with the rest of the group to determine relevance and validate accordingly.** *Running total: 115 min.*
7. Suggestions for improvement [about 5 min] ***Question aims:*** - *To identify any gaps/recommendations that can be added that are likely to make an impact*	Finally, thinking, do you think there are any recommendations or guidelines that could be added that have not been included here? **Allow for spontaneous response, encourage participants to think of their own experience and probe for motivations and benefits of any suggestions made.** *Running total: 120 min.*
8. Conclusion	We are coming to an end of this working group which, I think, has revealed some very interesting insights. Is there anything that you would like to add? Anything else that you would like to tell the CARISMAND project team about this topic? **THANK AND CLOSE**

Appendix B

CARISMAND Citizens Summits
Recruitment Questionnaire

Participant name: _____

1. Gender: ❍ Female ❍ Male

2. Age: _____ years

3. Have you, or a close friend or family member, ever experienced a disaster?
   ❍ Yes ❍ No ❍ I'm not sure.

4. Do you feel you are living in an area that is specifically prone to disasters?
   ❍ Yes ❍ No ❍ I'm not sure.

5. Do you know of any other people in your area where you live who you think are particularly vulnerable or exposed to disasters?
   ❍ Yes ❍ No ❍ I'm not sure.

6. Do you work as a volunteer in a community or self-help group?
   ❍ Yes ❍ No ❍ I'm not sure.

7. Do you use social media?
   ❍ Yes ❍ No ❍ I'm not sure.

8. I am working in a profession that is related to disaster management (e.g. Emergency Services).
   ❍ Yes ❍ No ❍ I'm not sure.

Participant signature: _____ Date: _____

Appendix C

CARISMAND Citizens Summits
Consent Form for Participation in Discussion Groups

Name of participant: _____

ID-card number: _____

I hereby give consent to the audio-recording of the discussions within the working groups and I commit to keep secret and confidential any information that I may gain access to during these discussions.

I have been informed that these Working groups are part of the CARISMAND project (Culture and Risk Management in Man-made and Natural Disasters) – a collaborative project co-funded by the European Union under the Horizon2020 programme.

I agree that my opinions and ideas expressed during these Working groups will only be used for the purposes of the CARISMAND project in an anonymised form by CARISMAND project members and other researchers. All my answers will be kept in a secure way.

My participation is voluntary and I understand that I am free to withdraw at any time, without giving any reason.

I hereby declare that I understand the participation conditions and that I agree to take part in these Working Groups.

I consent that a copy of this consent form is passed on to the CARISMAND team for due diligence purposes.

Date …….

Signature …….

Appendix D

Numbering matrix for cross-referencing question numbers used in Tables and Figures

Question	Numbering in synthesised data	Numbering in Citizen Summits 1&2	Numbering in Citizen Summits 3&4	Numbering in Citizen Summits 5&6
Experience of disaster	Q3	Q1.3	Q5	Q5
Feel that living in a disaster area	Q4	Q1.4	Q6	Q6
Know of vulnerable groups	Q5	Q1.5	Q7	Q7
Knowledge of procedures	-	Q1.8	-	-
Feeling informed	Q6	Q2.3	Q10	Q11
Feeling prepared	Q7	Q1.10	Q14	Q15
Interested in disaster preparedness info	Q8	Q1.9	Q11	Q12
Preparedness intentions	Q9	Q1.11	Q15	Q16
Frequency of receiving info	-	-	Q12	Q13
Frequency of participating in training	-	-	Q13	Q14
Level of perceived disaster risk	Q14	Q4.2.1/4.2.2	Q8	Q8
Feeling worried	Q10	Q1.7	Q9	Q9
Feeling concerned	Q11	Q2.2	Q16	Q17